

**Making Sense of NB Power's Energy Efficiency
Change:
Will Customers Get on Board?**

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Abstract

The electricity landscape is changing from one where utilities build their infrastructure to meet peak demand to using technology and communications to be more energy efficient.

Paramount to utilities achieving this goal of energy efficiency is changing their relationship with customers from a service provide to energy partner. This change in customer behaviour and attitude requires a transformational change strategy for utilities. Much of the literature suggests best practices that mirror the characteristics of Grunig's Excellence Theory of communications, as utility and customer must be aligned and work together.

As a vertically-integrated, publically owned utility, NB Power provides an interesting case study into energy efficiency campaign. It is in the first three years of a ten-year partnership with Siemens Canada to implement Reduce and Shift Demand, a program to investigate potential technology to be more energy efficient that runs in parallel with a promotional campaign to engage customers.

A qualitative analysis of the text on NB Power's website, as seen through the analytical constructs of Weick's Sensemaking properties and benefits and barriers, and demonstrated by Fisk's Theory of Responsible Consumption and Throne-Holst et al.'s Barriers to Energy Savings Solutions, provides insight into how NB Power perceives their customer, their objectives and themselves.

Key Words: Energy Efficiency, NB Power, Grunig Excellence Theory, Weick Sensemaking Properties, Two-way Symmetrical Communications, Theory of Responsible Consumption, Barriers to Energy Savings Solutions

Dedication

This thesis is dedicated to the author's key stakeholders:

To the Clan Teasdale, thank you Mom and Dad, thank you to my sisters for encouraging to keep learning, thank you to my brothers for reminding me to keep it simple and straightforward.

To my surrogate family, Team Taproom and my alumni around the globe, you have made New Brunswick home for this transported Bluenoser. I can't begin to express how much you all mean to me. Your love, support and encouragement have contributed to this achievement.

For Mary and Molly, whose spirit reminds me to try to make the best of every day.

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Introduction

The landscape of electricity generation and use has changed significantly in the past 50 years as technology has changed. Changes in technology have provided power companies with the ability to transform their business. Renewable electricity generation using wind, solar and hydro energy sources are becoming more common and cheaper to install. Industries are using by-products, for example, methane from landfills, to create smaller quantities of electricity to be used, referred to as embedded generation.

Changes in technology have also impacted how customers use electricity, increasing the number of tools available to manage electricity consumption. At the same time, there is an increase in conveniences provided by electricity. These conveniences, including tablets, cell phones, gaming systems and cheaper air conditioning have increased our demand for electricity, negatively impacting the power grid.

It is in this changing electricity environment, an environment impacted by legislation and a directive to reduce climate change, where utilities are changing their business model. Rather than increase their infrastructure to meet growing peak demand, utilities are using technology to help customers better manage their use and have demand follow electricity load. (CEA, 2015)

As utilities are working with technology to better manage electricity load and to have more renewables on the power grid, they are also working with customers to change their behaviour to reduce the demand and shift it away from the peak. This is turning out to be no small feat as electricity helps us achieve the lifestyle we have come to expect in first-world society. It can be interpreted by customers as a shared public good rather than a finite commodity that we buy and use. As such, utilities must transform customers'

sense of electricity and ascribe new meaning to not only this resource, but our meaning of what is acceptable use.

The literature review has provided an overview of best-practice trends to demonstrate the benefits of promoting energy efficiency. Research has also highlighted where utilities have not been as successful and the barriers experienced by customers that prevent energy efficiency adoption. As this exercise becomes a change management and communications strategy, authors have identified best-practice strategies that are the same found in Grunig's Excellence Theory (Grunig, Grunig and Dozier, 2002), which can become a good base to compare the messaging found on the website of New Brunswick Power (NB Power) and whether it is aligned with the research.

NB Power provides a good case study of this evolving phenomenon. In 2012, this publicly owned utility launched a program called Reduce and Shift Demand (RASD), which will incorporate technology to create a "smart grid" to bring renewable energy onto the grid and look to community-based, small-scale, embedded generation and small power generation and storage solutions in homes to reduce the amount of large power plants required. In the first two years of the program, NB Power is demonstrating the value of investing in Reduce and Shift Demand's smart grid to its customers. It is also encouraging customers to do their part in using the technology available to them to reduce their electricity consumption through rebates and tips. This study offers a textual analysis of NB Power's website using Karl Weick's seven sensemaking properties for an organization and the most common benefits and barriers found in industry best practice to assess how it is making sense of the change that Reduce and Shift Demand brings to their business, their customers and their environment. It will also identify how they are

communicating with their customer through the lens of how they are addressing the benefits and barriers outlined in the literature review. It will conclude with an assessment of how NB Power is aligned in comparison with the findings and discuss possible outcomes from the Reduce and Shift Demand program.

Thesis Questions

This research investigates the following questions:

1. How does NB Power make sense of their role in energy efficiency as represented in corporate text and discourse?
2. How does NB Power view their relationship with residential customers and how will it impact their success in convincing customers to reduce and shift their demand for electricity?

Literature Review

Search Methodology

This literature review occurred in two phases, an investigation of industry trends and a literature review of current energy efficiency programs.

The first phase of the literature review was to understand customers' view of electricity, any theoretical information on the use of electricity, and any case studies on similar energy efficiency programs. It also provided an opportunity to document the specific case study of NB Power's Reduce and Shift Demand program (sometimes referred to externally as Smart Habits).

The scope of the literature review included a mix of industry material and academic journals that are all publicly available. The industry material provided a baseline for the current state of the electricity industry in Canada that served both as context and as a source of search terms to use when looking through academic search databases. As an “authoritative voice of the Canadian electricity industry,” (CEA, 2015) the Canadian Electricity Association (CEA) site provided information on Canadian utilities. The literature review also included an overview of the Reduce and Shift Demand program, including the current infrastructure in the province and the case for change for the program on youtube.com found here:

<https://www.youtube.com/watch?v=P8FYzEgU0Z8> and

<https://www.youtube.com/watch?v=WLt7WRE4OfY>.

The review of academic journals was undertaken to perform an analysis on similar energy efficiency programs and to gain a sense of customers’ reception. The search began with a combination of search terms provided by the review of industry literature, including a combination of the following terms: electricity, energy efficiency, green energy, program, utility, power, reduce, public utility, public good, sustainability, products. A significant number of valuable resources also came from Ånse Lund Godbolt’s 2014 Ph.D. thesis from the Norwegian University of Science and Technology. Although Godbolt’s dissertation takes a more economics-based approach to energy efficiency, Godbolt and her colleagues’ focus groups identified trends in the public’s perception of energy efficiency that is relatable to Canada. The description of Norway in her thesis sounds similar to Canada:

... a small country, affluent in energy but with fairly long, cold and dark winters. Relatively cheap hydropower electricity is used for heating and this

energy is considered environmentally friendly. Furthermore, Norway is a large exporter of oil and gas, which is of great economic importance. Norwegian energy efficiency policy has been dominated by an approach emphasizing economic, rather than technical, efficiency (Godbolt, 2014, p. 189).

The description of climate and the importance of oil and gas to its economy is very similar to Canada. Similar to Norway, New Brunswick has a high percentage of homes heated with electricity. Similar to Norway, New Brunswick's energy efficiency policy is based, as we will see, on economic imperative set by policy.

Many of the articles referenced similar sources that directed the research to articles written by Shove (2003) on electricity's role in society. Godbolt et al. (2014) also source work by Thorne-Holst et al. (2008) describing six barriers to energy consumption. Authors focus on three of the six barriers, which are cultural and societal influences (which is also echoed in Shove's 2003 perception of electricity as a contributor to our comfort, convenience and cleanliness that sets the bar for societal status), economic barriers and information barriers. As these theories were commonly referenced, they were included in the literature review and their theories were used as further search terms.

Electric Utility Context and Current Challenges

The corporate structure of power utilities is influenced by our reliance on them in society and in how North America was developed. As mass urbanization happened across Canada, the economics to centralize electricity and make it publicly owned took shape (CEA, 2015). The majority of provinces in Canada, with a small population density, have the same challenges, which contributes to power utilities being publicly owned, through municipalities or provinces. An analysis of CEA membership shows that of the 20 utilities that deliver electricity to end-user customers (i.e. residential and small business), 17 are publicly owned, either provincially or municipally (CEA, 2015). Each province

has its own electricity act that governs the safe and reliable distribution of electricity in that province. Because of government involvement, and the integral role it plays in society, electricity can be viewed as a necessity provided rather than a commodity to be bought and sold; that is, if we even think of electricity at all. As it is regulated, it can be even perceived as a public good. Godbolt, Sørensen and Aune (2014) noticed that their focus group participants performed “qualculations” (pg. 157) on electricity by assigning value according to moral and political considerations rather than market price. The theme of electricity being a public good that has value beyond personal consumption can be seen in articles that discuss publicly owned utilities. Schulz et al. (2008) also define an electricity network as a public good as it is a “shared commodity, like a street sign, such that use by one person does not reduce the enjoyment of another person.” (pg. ii). This is similar to Godbolt, Aune and Sørensen’s (2014) finding that consumers felt they had an “established right” (pg. 154) to electricity as it is plentiful and, therefore, not depriving others of consumption.

Energy use in North America and most of Western Europe is used to support the infrastructure in our daily lives: home heating and cooling, hot water heaters, refrigeration of food, lighting and cooking, and air conditioning (Abrahamse et al. 2005; Owens and Driffill, 2008). For the customer, unless there is a power outage or an issue with the bill, we assume electricity is there when we turn on a light switch or turn on an appliance and think no more of it. Shove (2003) describes the average customer’s perception of electricity as “invisible... bound up with routine and habit” (pg. 395). Owens and Driffill (2008) describe our interactions with electricity as “established infrastructure of taken-for-granted hardware or technical systems” (pg. 4413). It is

important to note that taken-for-granted does not mean unused, but so part of our day-to-day lives and lifestyles that we assume its availability. Godbolt, Aune, Sørensen and Ryghaugh (2014) agree, describing our interaction with electricity as “energy cultures consist[ing] of everyday life practices and actions, and also symbolic interpretation of energy and energy-related artifacts” (Godbolt, Aune, Sørensen and Ryghaugh 2014), pg. 168).

Current electrical grids in North America and Western Europe are constructed based on what utilities predict will be the demand based on historic use (Shaw et al. 2010). Monthly metering is used for billing as well as historic information to determine how much electricity will be required at the same time next year to run through the power grid to meet demand. The responsibility of ensuring the right amount of electricity is available and transmitted on the grid resides with the balancing authority or system operator, which has real-time information on the amount of power used, as well as weather and historical information to predict how much will be required (Fox-Penner, 2010).

As it is the responsibility of the balancing authority to ensure enough electricity is available, the infrastructure is built to meet the maximum demand, or peak (Press and Arnould, 2009). As such, utilities are required to maintain an electricity system where some of the infrastructure is only used for part of the day, typically when customers are preparing for the day and opening businesses (approximately 7 a.m. to 10 a.m.) and returning home from work to prepare meals and heat or cool the home (approximately 5 p.m. to 8 p.m.). The peak loads, however, are only for short bursts of time. Of the entire electrical infrastructure, only 20% of the grid is used 1% of the time (NB Power, 2013).

Typically, fully integrated utilities that manage the generation and distribution of electricity will use their most reliable and lowest-cost power plants on a full-time basis to generate the minimum amount of electricity demand. This is also referred to as base load. When demand is at its highest, power will be generated by the older and less-efficient plants, thus increasing the cost of electricity (Fox-Penner, 2010). As the demand for power increases during peak times over the years, some power companies have reduced their power reserves rather than build up their infrastructure. Although this saves money for the utility, it does not reduce the amount paid by the customer and reduces the buffer of energy estimated by the utility (Press & Arnould, 2009). This, in part, contributes to the phenomenon of brown-outs experienced by some regions.

It is predicted that demand for electricity will increase, mostly due to changes in our lifestyles (NB Power, 2015). With new appliances added to our everyday lives (e.g., microwave ovens in the 1980s, home computers in the 1990s, tablets and phones in the 2000s), the demand for electricity increases. There is increased dependency on the electricity grid as, Fox-Penner (2010) notes; there is a political push in North America to have more energy security and to be less reliant on imported oil, which contributes in part to the growing electric transportation industry. As well, Shove (2003) argues that newer buildings and homes have shifted our expectations of indoor climate control, both cooling and heating, from a creature comfort to a way of life, which increases demands on the grid.

The increased demand from customers requires increased electrical infrastructure on top of maintaining and refurbishing the current grid. This means building more plants, constructing more transmission towers and stringing more electricity lines to meet

increasing peaks (Lopes et al. 2012). The current transmission infrastructure is also limited the amount of renewable energy it can make available to most parts of the country (Press and Arnould, 2009).

While electricity demand increases, so does the imperative to address climate change. As of 2007, 21% of greenhouse gas emissions in the United States and 15% in the United Kingdom were attributed to household use (Abrahamse et al. 2007). The increase in megawatts of electricity used will mean a greater reliance on coal and fossil-fuel burning power plants, as the renewable resources are “commercially unproven, expensive, and difficult to tap” (Fox-Penner, 2010, 204).

In short, electrical utilities are expected to do more with less. They are mandated by government legislation to provide safe, reliable electricity. They are expected by their customers to meet their growing demand for electricity with the same or better level of service (Stephenson et al. 2010). They are also expected to reduce their greenhouse gas emissions and to explore new sources of renewable generation and technologies to minimize impact to the environment (GNB, 2011).

To achieve this, utilities look to two key strategies, one is technology to manage electricity load; the other strategy is to encourage customers to change their electricity consumption habits, mostly through reducing use (Shaw et al. 2009). This can be achieved through the use of smart grid technologies. Fox-Penner describes smart grid as “the marriage of modern information technology and the electric system” (pg. 34). The smart grid moves the architecture of the electricity grid from a one-way route of power plant to the home into more of an intricate web of smaller suppliers and users, relying on two-way communication between the appliances requiring electricity, the smaller power

producers, and the system operator. This two-way communication will help demand follow the generation of electricity rather than generation following supply (NB Power, 2013).

For example, rather than sending electricity to homes and businesses whenever consumers demand it, the smart grid can turn off industrial cooling and heating systems at peak times to reduce cost. The system operator can send a signal to use the heat from thermal storage bricks in hot water heaters and heating in thermal storage units when the wind is blowing or sun is shining. When the heat is required, electric fans are engaged to blow the stored heat into the room. Smaller renewable electricity generators like landfills burning methane or pulp mills burning waste wood will more easily connect to the transmission grid, which will allow utilities to retire large fossil-fuel generation plants (Fox Penner, 2010; NB Power, 2013). These innovations will help reduce the peak and, therefore, reduce the infrastructure required to meet the peak. Rather than worrying about replacing a fossil-fuel burning plant that is ready to be decommissioned, the utility can draw on smaller renewable resources and batteries storing wind and solar power and turn off unnecessary appliances.

The smart grid provides some exciting new opportunities for the electricity industry. However, the impacts will not be felt by the utilities alone. Consumers have an important role to play in making the right choices for electricity use. (Gyberg and Palm, 2009) Rather than only thinking of electricity in the millisecond it takes to flip a switch or press the power button, customers will be required to understand the electricity market, recognize its symbolic importance to our everyday lives, and use that knowledge and recognition to modify behaviour (Godbolt, Sørensen and Aune, 2014). For most

customers, Shove and Warde's (1998) description of electricity as "an established infrastructure of taken-for-granted hardware or technological systems" (pg. 231) reflects their experience. As customers, electricity is the means to the achieving comfort, cleanliness and convenience (Shove, 2003). Budinsky and Bryant (2013) cites Fromm's argument of electricity consumption being "alienating" as the consumption is represented by money rather than production or impact. Godbolt, Sørensen and Aune (2014) discuss electricity demand as a social construct to maintain our place in society rather than an individual need, which speaks to electricity as a symbol of being part of society. This behaviour change includes increased trust in the utilities to shut off electricity that is not required, changing the interior temperature of homes and businesses by a few degrees, or determining which creature comforts are a priority and which ones can be turned off if necessary. This sea change of attitude towards electricity is referred to in the electricity industry as reducing and shifting demand.

Reducing and Shifting Demand: the Why and the Who

Electric utilities have influence over the source of electricity used and the innovations they want to invest in; what is beyond their control is the customers' level of demand and at what time it is required. Many programs have been established by utilities to promote behaviour change by their customers, mostly through education on websites (Gyberg and Palm, 2009). The targeted behaviour changes in customers fall into two categories: efficiency, which is one-time investments like adding insulation or switching heating and cooling sources, and curtailment, which are the repetitive behaviours to reduce consumption that, over time, can make a large contribution to energy efficiency (Abrahamse et al. 2005).

The literature showed recurring incentives for customers; financial savings, positive impacts to the environment, and appealing to the customers' overall goodwill. Utilities will often provide a chart on customers' bills to show how much electricity was consumed in the past year as an incentive to reduce their future bills. They will also calculate the electricity saved in terms of dollars saved (Godbolt, 2014; Gyberg & Palm, 2009). Gyberg and Palm (2009) recount an experiment in a Chicago apartment building where tenants were charged real-time prices for their electricity. When peak electricity demand caused the rate to increase, customers were charged that amount; conversely, customers paid less for electricity during non-peak times. By using a financial driver to reduce and shift electricity, the tenants not only reduced consumption during the experiment, but the participants continued to change their consumption habits three years after the experiment.

In focus groups conducted in Norway on electricity consumption, Godbolt (2014) found that participants reported that economics was a concern, but the interviewees would frame energy conservation in terms of social considerations (Godbolt, 2014, 188). Participants stated that their parents raised them not to waste, which, although could be framed as "wasting money," it is referred to in the broader context of being a "decent person" which could include environmental waste or feeling guilt for wasting electricity (pg. 177). What is interesting is that Godbolt's participants' perception of social good and morality is two-fold: not only do they have a morality to not waste, but they expressed frustration over the lack of morality of external responsibility (pg. 207) when government does not facilitate change. De Young (1996) (in Barr and Gilg 2006) also argues that people participate in environmental behaviours to gain an inner sense of well-being and a

feeling that they are making a positive contribution to society. Gyberg and Palm (2009) reinforce the need for knowledge to help customers make a “correct choice,” which is not necessarily a correct economic choice, and to “take responsibility for his/her own choices” (pg. 207), implying that there is a right and wrong when considering energy consumption. This positive contribution is typically framed as a contribution to preserving our environment. In all of the studies examined for this thesis, the appeal for money saving, contributing to the environment, and being a good neighbour were used as incentives to the Reduce and Shift Demand program.

Although the financial, ecological and moral incentives are consistent across the literature, there is variety in the opinion of who should take the reins to Reduce and Shift Demand. The four parties identified in academic studies, for the most part, are government and policy, utilities, the construction industry and the customers themselves. In the literature, there are pros and cons to each group being the primary actor in energy efficiency programs.

Governments impact utilities as the primary shareholder, setting the utility's direction by enacting policy from an economic and environmental standpoint. In 1992, members of the United Nations participated in an Earth Summit to address greenhouse gas emission impacts on the globe and to set targets to reduce emissions. These targets were then updated with the Kyoto Protocol, which outlines commitments by each country. The Kyoto Protocol is an input into further greenhouse gas emission caps at the national, provincial and municipal levels (Press and Arnould, 2009; Gyberg and Palm 2009). As electricity generation and consumer use is a significant contributor to greenhouse gas emissions, governments have set goals for utilities to limit emissions. For

example, the Province of New Brunswick set a minimum of 40% renewable energy sold within the province by 2020 (Department of Energy, 2011) in an effort to reduce the number of fossil fuel burning plants in the province.

Government intervention and support has shown to help in the adoption of reduction programs. Federal and provincial efficiency programs provide financial support for utility customers to invest in efficiency programs. For example, a key factor in the success of solar panel adoption in Germany, Denmark and Spain is the support received from public policy (Claudy, Peterson & O'Driscoll, 2013).

Setting environmental regulation helps not only to enforce emission standards, but it also demonstrates a commitment to the electricity industry and the customer that change is required. However, government regulation is not a panacea. Although policy can be set and funding provided, Godbolt (2014) argues that policy is normally set by economists and policy makers that view utilities through a business and commodity lens. Government involvement usually consists of economic strategies that include customer audits, interest-free loans or grants (Lopes et al. 2012). It assumes that utility customers will view electricity consumption through the same rational, commodity-based lens, or *homo economicus*, which isn't always the case (Godbolt, Aune, Sørensen, 2014).

Another limitation of government-led energy efficiency programs is the level of trust that customers have in their political leadership. Wüstenhagen, Wolsink and Bürer (2007), in Press and Arnould (2009), present evidence that trust is key to acceptance of energy policies in several countries. Unfortunately, the intent of energy policy can be tainted if customers feel that the energy policies are campaign rhetoric (Barr, 2004). Even if government is sincere about their energy policy, a paradox can happen when

governments encourage industry that is perceived as harmful to the environment, such as oil and gas, while encouraging electricity reduction (Godbolt, Aune, Sørensen, Ryghaug, 2014).

As keepers of electricity consumption data and the group with the most vested interests, some authors argue that utilities are the most logical owners of reducing and shifting demand programs. Fox-Penner (2010) points out that the fit makes sense as the utilities are either regulated or publicly owned, so there is a sense that the advice provided is objective and effective. The utilities are also capable of implementing the technology required for demand-side management programs that are popular among reduce and shift demand strategies (Lopes et al. 2012). They are also the prime source of information and feedback provided to customers on their own consumption, which, we will see, is considered key to program effectiveness by researchers.

There is also the practical matter of financial investment. One of the challenges when implementing efficiency programs is that these larger, one-time investments require a capital investment up front with gradual payback over time (Fox-Penner 2010). The upfront capital investment with slow, long-term payback is the financial model of most utilities. Utilities have the ability to transfer capital and manage the balance books, making it easier for them to offer grants or interest-free loans to consumers.

The challenges found with utilities running efficiency programs are similar to those with government, which is reputation and conflicting perceptions of the root problem with electricity consumption. There is some question from customers as to why utilities would want to have less demand from customers as supply translates as income. However, this becomes a superficial view of a utility's finances as the utility could

reduce capital investment. Lischinsky and Sjölander (2014) note that most media coverage use public authorities, government representatives and independent scientists to comment on environmental problems and electricity issues rather than a representative from the utility. This could probably be because due to the perception of independence from the utility, which has such a vested interest.

The literature also shows that the construction industry can play a role in reducing electricity consumption and promoting energy efficiency. Modern energy-efficient buildings, with optimal insulation and natural light, can reduce electricity requirements without impacting the occupants' standard of living. Shove (2003) reminds us the buildings of today “help to build what will become the traditions and conventions of tomorrow” (pg. 76). Godbolt, Aune, Sørensen (2014) and Godbolt, et al. (2014) and Lopes et al. (2012) remind us that the European Union identifies buildings as the “most promising target to improve energy efficiency” (pg. 4096). Godbolt et al. (2014) also note that architects and designers in the construction industry understand the changing technology and the number of energy efficient features that could be unknown to consumers, so they would be the best candidate to analyze and design living situations to be more energy efficient. Hille et al. (2011), cited in Godbolt (2014), offer that energy-efficient homes have contributed more to lowering energy consumption than originally assumed.

However, a building's efficiency relies on the electricity habits of its occupants. In other words, no matter how energy efficient a building can become, occupants can easily depart from energy-efficient options as they are expensive and there are no regulated standards for energy efficiency (Godbolt, Sørensen and Aune, 2014; Fox-

Penner 2010). It then falls back to the homeowners, the office building occupants, the people, to understand the electrical system, respect their contribution to the environmental cause and electricity demands, and change their behaviours.

Most of the research starts with the assumption that there are electricity customers who are concerned about their impact on the environment and seek to reduce electricity consumption themselves (Budinsky and Bryant, 2013; Godbolt, Sørensen and Aune 2014; Chang 2012). Energy-efficiency programs have been shifting responsibility, making the individual central to the solution (Gyberg and Palm 2009); after all, it is an individual who turns on the light, turns up the thermostat and turns on the major appliances.

As the energy-efficiency programs focus on the end user, the solution moves from inside the technology lab and into the hearts and minds of users. To change behavior, one must raise awareness to each of the customers. To quote Hartmann and Apaolaza-Ibáñez (2012), “Green energy’s future success depends on effective branding and marketing communications strategies design to enhance consumers’ benefit perception” (pg. 1254). The future of reducing and shifting demand, therefore, becomes an exercise in rhetoric and transformational change management.

What is my motivation as a smart grid actor?

Most, if not all, of the literature maintains that the success of any energy-efficiency program requires a form of rhetoric to convince consumers of the value of changing their behaviour (Godbolt Sørensen and Aune, 2014; Aune, 2007; Chang, 2012; Green and Cappell, 2008; Claudy, Peterson and O’Driscoll, 2013). Godbolt Sørensen and Aune (2014) identified the need to understand the mental barriers and drivers for change

to get customers to adjust how they use electricity. Aune (2007) goes a step further and states that the motivation, needs and tastes must be tailored to the customer. Chang (2012) and Green and Cappell (2008) and Claudy, Peterson and O'Driscoll (2013) hold the position that people who are already environmentally conscious will participate in energy-efficiency programs anyway. What remains are those who are not motivated by environmental factors. However, a study by Levin (1993) showed that relying on environmental concerns too much can lead to a sense of helplessness among customers as they do not see the direct correlation between their sacrifice and an improved environment. Englis and Phillips (2013) also cite a risk that the environmental movement could become "less trendy" (pg. 13), which could impact motivation based on the environment. Since customers will already be motivated by environmental factors, and it could be a very small window of influence, researchers have tried to understand other motivations for utilities to use to convince customers.

The most commonly mentioned motivators in literature are cost savings, trust in the source of information or education, law or moral obligation, and a better environmental future (Owens and Driffill, 2008; Stephens et al. 2008; Gyberg and Palm, 2009; Luhman, 1989).

The go-to motivation used by most utilities seems to be around the environment, with good reason. Utilities, like other industries, are driven by regulation to reduce carbon emission. As well, it is a popular topic among consumers. Green and Cappell (2008) cite a 2007 survey by a consulting firm AccounAbility that half of US and UK consumers polled wanted to know more about products' impact on the environment. Press and Arnould (2009) cite Bonini, Hintz and Mendoca's 2008 analysis of surveys that

show environmental issues are one of the greatest personal concerns for both consumers and executives for the next five years. Owens and Driffill (2008) believe motivation becomes the key to beginning the flow of communication required to change behaviour rather than a didactic, top-down instruction that is normally used with consumers. The two-way communications approach echoes Grunig's best practice for communications (Grunig, Gunig and Dozier, 2002).

Although the motivations are understood at a macro level, there are still challenges in understanding what will bridge the gap between attitude and behaviour. Owens and Driffill (2008) identifies that the multiple motivations why customers should change is being overlooked in favour of teaching the how. A significant number of the studies on motivation around energy-efficiency behaviours show disconnect between a positive attitude towards energy efficiency and behaviour. (Abrahamse et al. 2007; Owens and Driffill, 2008; Claudy et al. 2013; Godbolt Sørensen and Aune, 2014) It is to a point where the inaction of consumers is a given, and most of the research is investigating what is not working rather than identifying anything that is, indeed, working.

Of those that are engaged in electricity efficiency for environment's sake, Stern et al., (1995) in Barr and Gilg (2006) note that these customers were considered on the far end of the 'altruists' and 'open to change' spectra and are in the minority. Hartmann and Apaolaza-Ibañez (2012) summarized public opinion surveys that concluded up to 30% of consumers are willing to pay extra for green energy. However, the behaviour of spending extra on green energy does not match the expressed willingness. The mismatch of behaviour to attitude is seen across all consumer goods to where Englis and Phillips

(2013) mention the “30:3 Rule” used by retailers; of the 30% of consumers who say they want to make environmentally friendly purchases, only 3% actually follow through and make those purchases.

Knowledge, Economics and Culture: The Three Usual Suspects in Guiding Energy Efficiency Decisions

Most of the research (Claudy et al. 2013; Godbolt, Sørensen and Aune, 2014; Abrahamse et al. 2005) reminds us that just as there are multiple ways of approaching electricity use and efficiency, there are multiples influences on consumer behaviour. Throne-Holst et al. (2008) identified six categories of barriers for changing energy consumer behavior. Of the six, the most dominant barriers to energy efficiency were cultural expectations, economic investment and information deficiency. These themes repeat themselves throughout the literature found.

As mentioned before, utilities are viewed as ideal candidates to run efficiency programs given their vested interest and their source of information. Utilities have the ability to provide their customers with information on their power consumption and tools and tips on how to be more efficient. For example, past energy use is given to customer to broaden their knowledge and hopefully influence behaviour. (Abrahamse et al. 2005). However, just as Owens and Driffill (2008) argued that as a two-way flow of knowledge between utility and customer is the best approach, Gyberg and Palm (2009) state that the sender-receiver model of one-way communication oversimplifies the matter, which is an even bigger issue for such a complex topic.

Electricity consumption is not the simplest of household purchases. There is usually no real-time meter like a fuel tank that shows you how much power you have consumed. Use does not depend solely on whether an appliance is turned on or off. Most

modern appliances connected to a network, for example, televisions, computers and videogame systems, can still be using power even when it is turned off. (Press and Arnould, 2009). This phenomenon is called phantom load.

As such, authors argue that electricity consumption, efficiency and impact on the environment is a complex topic that may not be easily understood (Stephenson et al. 2010; Green and Capell, 2008; Press and Arnould, 2009; Godbolt, 2014). Customers may have less desire to embrace energy efficiency when they realize there is a cognitive requirement to understand the electricity grid and energy efficiency, rather than basic heuristics to guide their electricity use (Lopes et al., 2012).

Although technology can facilitate customers' understanding of electricity consumption, the complexity then lies with the use of innovation and technology. Englis and Phillips (2013) state that customers' ability to adapt to new technology can indicate early adoption of innovations that would benefit the pro-environmental movement. This is positive for those who have the desire and know-how to adopt these innovations. However, the complexity then gets transferred from one topic, that of the electricity grid, to another, that of innovation (Godbolt, Sørensen, and Aune, 2014).

For consumers who would have the desire to learn more and engage in energy-efficiency behaviours, there can be skepticism over accuracy of the information. Given the growing consumer interest in buying products that help or at least not harm the environment, there are a growing number of products on the market that purport to be environmentally friendly or "green." Englis and Phillips (2013) cite a study by TerraChoice in 2010 that estimates upwards of 95% of "green" products are actually "green-washed." Researchers warn that consumers who have been green-washed may be

wary of energy-efficiency technology sold by utilities and partners (Lischinsky and Sjölander, 2014; Englis and Phillips, 2013; Godbolt, Sørensen and Aune, 2014, Montoro-Rios et al., 2008). To address this, Lischinsky and Sjölander (2014) recommend the solution of using a “seemingly independent source” to lend credibility; however, this could backfire if there is a correlation, such as sponsorship or a working partnership found between the “independent” source of information and the utility sponsoring the efficiency program.

If consumers feel that they have the knowledge to be more energy efficient and trust the electricity-reduction programs, then consumers will also have the knowledge to understand the end results. Ironically, knowing the end results may be a risk for the sustainment of energy-efficiency programs. Customers may expect the results of their energy efficiency efforts would equate to a similar level of change to either the environment or their bill. Both Gyberg and Palm (2009) and Godbolt, Sørensen and Aune (2014) found a sense of helplessness and frustration with customers, who felt that they had a minimal impact on reducing carbon footprints. The lesson learned is “People need to feel that their efforts are making a difference” (Godbolt, Sørensen and Aune, 2014, pg. 32).

Some authors have noted a correlation between energy efficiency attitude and income. Press and Arnold (2009) stated that the group who are most interested in being “energy stalwarts” (pg. 103) had the disposable income to invest in energy saving measures. This could be because there is a commitment of time and money to change energy consumption behaviour (Englis & Phillips, 2013). Conversely, people who identified as non-environmentalists were more likely than other groups to be on the low-

income spectrum as they probably don't have the capital to invest in energy saving measures. (Bar, Gilg & Ford, 2005).

Economics is not always a predictable driver to change customers' energy-consumption behaviour. Gyberg and Palm (2009) note that customers motivated by economic profit saw the rate of return was too small to make a difference. In many cases, cost was not considered when consumers made electricity choices. Aune (2004) (in Godbolt, Aune, Sørensen, Ryghaug, 2014; Gyberg and Palm 2009) notes that when electricity prices spiked in Norway due to a drought, there was little-to-no change in electricity consumption, demonstrating that price does not impact behaviour. The upfront investment required to become energy efficient can sometimes deter consumers as the payoff can take a very long time.

The economic perception of energy is not always the most effective lens for customers as it adds another level of complexity to energy. When asked whether consumers took advantage of the private electricity market in Norway to conduct comparison shopping, Godbolt, Sørensen and Aune (2014) found that most consumers found electricity consumption too confusing as it is to add finance as a factor.

Given that energy efficiency requires capital investment for both utilities and it is the output that generates income, policy makers tend to position electricity in the context of a commodity. Electricity is framed as a product to invest in and customers as investors (Godbolt, 2014). However, electricity is so integral to our well-being and utilities have a tradition of being publicly owned, Godbolt, Sørensen and Aune (2014) argue that customers view electricity as a public good rather than a commodity. This helps explain

why customers in Norway did not change their consumption behaviour in response to price spikes (Aune, 2007).

If customers are accustomed to electricity being integral to their lives and a public good, we must then look to how our lifestyles impact our electricity use and determine what transformational changes we have to make in our lifestyles to change electricity habits (Owens and Driffill, 2008).

There is an interesting dichotomy that happens for electricity companies, particularly those that are owned by a municipality, province or state. Godbolt Sørensen and Aune, (2014) discuss the utility's view of electricity as a good from the commodity sense that it can be bought and sold. However, utilities also hold that they are responsible for electricity as a form of public good from a sense of its contribution to our society as the foundation for stability and growth of other industries (CEA, 2015; Schulz et al, 2008). The idea of electricity as public good can be seen in Press and Arnould's (2009) description of power reserves that are an important part of reliability rather than surplus inventory.

Shove's (2003) work is cited frequently in energy-efficiency research when discussing the cultural frame for electricity use. She described electricity's contribution to societal norms of cleanliness, convenience and comfort. Across the board, the literature noted that consumers are willing to participate in energy-efficiency practices so long as they can maintain their expected level of convenience and comfort (Barr, Gilg and Ford, 2005; Godbolt, 2014; Englis and Phillips, 2013; Gyberg and Palm, 2009). Godbolt's (2014) focus groups admitted that they participated in electricity efficiency behaviours to save some money, but only to the point where they were not inconvenienced. Some drew

the line at hanging clothes to dry versus the clothes dryer, citing the inconvenience of time. Barr, Gilg and Ford (2005) found the most common line between efficiency and comfort lay in home heating and hot water, as customers did not want to sacrifice comfort. In fact, O'Doherty et al. (2008) notes that more modern homes that would have more energy-saving features use more electricity than small, less-efficient homes, mostly due to the increased number of convenient appliances and the comfortable, built-in climate control features that have become the norm.

Some research suggests energy-efficiency programs that would increase cleanliness, convenience and comfort would be more appealing. Whilhite et al (1996) in Aune (2007) argues that consumers' make home-improvement decisions, of which energy efficiency improvements would be included, based on improved comfort and coziness, coined as "nest-building." Hartmann and Apaolaza-Ibáñez (2012) echo this sentiment, saying that customers respond to utilitarian environmental benefits, those that have a benefit to customers, when making green purchase decisions. Gyberg and Palm (2009) noted that online efficiency programs that presented energy-saving alternatives as a choice that would not impact people's standard of living were more receptive. None of these findings should be a surprise to any consumer. Consumers do not typically go out of their way to be inconvenienced, especially in their home life. Godbolt, Aune, Sørensen and Ryghaugh (2014) presented the following excerpt from their focus groups as a typical response to consumers' willingness to adopt energy efficiency changes:

"[I can do little things. Things that do not take too much time [sic]. Everyday life is so busy, and if it becomes a large project, then it's probably not so many that are willing to make the effort. If small actions may contribute, then one can take part in it." (Tanja, 3) (Godbolt, 2014, pg 178)

When considering the cultural barriers for electricity consumption, authors pointed to the macro-level influence of culture and society, that is, the influence of others on individual consumers. Chang (2012) suggested that avoiding guilt becomes the driving factor for individuals when making green choices, rather than the environmental and economic benefits themselves. Budinsky and Bryant (2013) argue that focusing on the individual rather than the collective good discourages long-term thinking when considering energy efficiency.

As well, Goldbot, Sørensen and Aune (2014) and Barr and Gilg (2006) argue that individuals rarely think in a vacuum when it comes to making lifestyle choices. Friends, family and neighbours when making consumer choices influence us. We measure our levels of comfort, convenience and cleanliness in relation to others. Stephenson et al. (2010) cite the Actor-Network Theory (Latour, 1993; Law and Hansard, 1999) that our material world is created by a network of dynamic interactions, by both individuals and objects, which drives stability and change. In sum, we as consumers will consider how we “keep up with the Joneses” when making any change to our lifestyle, including changes related to energy efficiency.

Societal influence, which includes maintaining the societal standards for cleanliness, convenience and comfort, become especially important if we want to influence consumers who would not otherwise be driven by environmental concerns. Barr, Gilg and Ford (2005) found that the group who labeled themselves as non-environmentalists rarely looked for energy-efficient products and only performed energy-efficient activities that required the least effort. These non-environmentalists would also be turned off by any appeals to their conscience. Chang (2012) notes that there is a U-shaped relationship to

guilt. If pushed to feel guilt about their contribution to the environment, the non-environmentalists could feel irritation and anger.

When presenting their reasons for not engaging in energy-efficiency issues, the non-environmentalist consumers presented reasons related to trust and scope. Godbolt, Aune, Sørensen, Ryghaugh (2014) found some consumers questioned the science behind climate-change challenges presented, citing differences in opinion among scientists. They also saw their limited response in line with the lack of political engagement and felt the responsibility, if required, lay with policy makers. Both Barr (2004) and Godbolt, Aune and Sørensen (2014) reminded us of the risk of localizing environmental issues, showing that non-environmentalists may assess environmental health based on their own back yard, which may contribute to a greater sense of apathy. In sum, environmental motivation may work for a segment of the population, but it is not a motivator for all. Rather, if the environmental benefit was positioned as an additional value to the product, it can be assessed on a case-by-case basis (Montoro-Rios et al., 2008).

Who Should Be The Energy Efficiency Messenger?

Due to the large scope of environmental impacts and the need to encourage consumers to move out of their energy comfort zone, some literature suggests that government and political policy has a leadership role to play in energy efficiency programs. The research from Vringer et al (2007) argues that an energy policy based on taking personal responsibility for the environment is not effective. Godbolt, Sørensen & Aune (2014) cite Slocum's (2004) study of two different organizations that used the strategy of localizing climate change. The resulting recommendation was to choose objects that are relevant to society in general.

Part of these findings could be explained by Chang (2012), who stated people having little motivation to process messages if the issue is not proximal to them. This is what can happen to the average consumer if they are not seeing the connection between power consumption and the environment, which is not necessarily an exact correlation. Godbolt (2014) also argues that we as a society practice the morality of external responsibility, which means that we look to the policy makers to take on responsibility for shaping our actions and motivations. Evidence of this phenomenon, according to Godbolt, can be seen in our “feelings of frustration and powerlessness.” (pg. 207). As customers can feel powerless when they do not see a direct cause and effect on the environment by reducing electricity, so too do customers feel powerless when those around them are not mandated to follow suit.

Regardless of where the drive for changing electricity consumption comes from, whether it be from incentive programs through utilities, advice from construction experts or legislated through government, electricity is so engrained in our everyday lives it can become difficult to change our habits. (Shove 2003; Shove et al. 2008; Godbolt, Aune, Sørensen, 2014, 137). An example of the impact of habit comes from a study performed by Staats et al. (1996) cited in Abrahamse et al. (2005), which studied a mass-media campaign in The Netherlands aimed to change habits that impact global warming, including energy consumption. The literature showed that the level of awareness and knowledge increased, but only among those who were already behaving in a pro-environmental fashion prior to the campaign. Another study cited by Abrahamse et al. (2005), this time in North America, was Press and Arnould's evaluation of President Jimmy Carter's televised speech to Americans. Carter's plea to customers to lower

thermostat settings during the gasoline shortages experienced by the US in the 1970s resulted in no difference in thermostat settings by those who watched the address.

Even in recognizing the importance of the environment, Chang (2012) reminds us that although people can feel guilt when trying to change undesirable behaviours, like energy waste, there is a desire to make restitution. However, the restitution is to alleviate guilt, not necessarily to address the issue. Nevertheless, the success of environmental problems, according to Gyberg and Palm (2009) rests on the ability for consumers to change their lifestyles when it comes to energy consumption.

What Works: Communal Responsibility supported by Customized Data and Advice

Some studies have found positive results from energy efficiency programs that, although not prescriptive, provide a flexible framework for utilities, government and individuals can use to encourage energy efficiency and change habits. (Abrahamses et al., 2005; Gyberg and Palm, 2009; Claudy, Peterson, O'Driscoll, 2013). Abrahamses et al. (2005) believe that a combination of strategies is more effective than one single strategy. If consumers, utilities and governments have competing attitudes and strategies for energy consumption, it makes logical sense that no single strategy would fit the bill. The successes fall into broader categories of the importance of community to shape attitudes, goal setting, customized information for the consumer and a desire to do right by the environment.

Rather than assigning specific responsibility to one party, Budinsky and Bryant (2013) remind us that responsibility for energy efficiency is shared among individuals, corporations and government, thus removing the sense of blame game that can happen with energy-efficiency programs. Abrahams et al. (2005) agree, reminding readers the

importance of macro-level and micro-level variables when changing energy consumption habits. Godbolt, Sørensen, and Aune (2014) describe the responsibility of energy efficiency as an interactive negotiation between consumers, their community (which, arguably can be influenced by government and the utilities) and themselves. Claudy, Peterson and O'Driscoll (2013) believe that discourse among consumers and stakeholders, including media, industry and government, can be a major influence on an individual's energy consumption. Press and Arnould (2008) refer to Fisk's (1973) theory of responsible consumption, which, similar to a three-legged stool, incorporates economic (e.g. policy makers and utilities), social (e.g. government and our society) and environmental (e.g. science and moral imperative by individuals) factors, which fits with this sense of collective responsibility in reducing energy consumption.

Goal setting for consumers becomes a common success factor cited in the literature. Goldbot, Aune and Sørensen (2014) discovered focus group members set goals for themselves as a form of competition to save on electricity. The goal to reduce their energy consumption compared to last year was an even bigger driver than money savings for some focus group members. Abrahams et al. (2007) in their research, notes several studies where goal setting and feedback play an important role in reducing energy use. Their research suggests an interesting phenomenon where consumers given a difficult goal to reduce energy consumption and feedback were more successful than a moderate goal and no feedback.

The importance of direct feedback, notably, information on how consumers were progressing against their energy reduction goals, was pervasive among the literature. Lopes et al. (2012) notes that the more specific the feedback to the consumers' behaviour,

the more successful the consumers were in reducing their energy consumption.

Abrahamse et al. (2007), Gyberg and Palm (2009), and Fox-Penner (2010) also noted that measuring all energy-related activities in a home acted as an effective tool for consumers to understand their energy consumption better, and therefore, break habits for using electricity in the home. As mentioned previously, the positive impact on reducing energy use in the Chicago apartment building in Gyberg and Palm's (2009) article had a great deal to do with customers receiving real-time information on their consumption and its impact on the grid. Rather than broad estimates and guidelines, the residents were able to change their consumption behaviours, which have remained to this day. Given that utilities would be the best source of specific information on home consumption, the importance of feedback reinforces the sense that all players, including utilities and consumers, must play a role in energy efficiency.

Even with the information available to set realistic goals and to coach consumers into reducing energy consumption, no efficiency program can be successful without a commitment from the consumers. As we have seen, there seems to be too tenuous a connection between the price of electricity and energy consumption to drive most consumers. Given that electricity is considered a "public good" to the majority of customers, environmental appeal, or "going green" seems to serve as the most effective driver for consumers (Claudy, Peterson, O'Driscoll, 2013; Barr & Gilg, 2006) Englis and Phillips (2013) notes that individuals who had pro-environment attitudes were more open to new ideas for energy consumption. Godbolt (2014) noted that their interviewees felt it crucial to present themselves as being concerned with energy efficiency in their everyday lives. One barrier, however, that was presented was the cost to adopt energy-efficiency

programs. As mentioned before, the more significant energy-efficiency behaviours in the home require an investment in newer technology, whether it be heat pumps or newer, more efficient appliances that synchronize with the power grid. Abrhamses et al. (2007) note that households with higher-than-average incomes, along with a green attitude, were more likely to participate as they had the means.

What is common across many of the much of the literature, and has been identified here, is just how complex the discussion is regarding energy efficiency (Gyberg & Palm, 2009; Lopes et al., 2012; Godbolt, Aune, Sørensen and Ryghbaugh, 2014; Abrahamse et al. 2007; Shove, 2003). Energy consumption is integral to how we live our lives, tied to the comfort, cleanliness and convenience that shapes our lifestyle expectations and is a marker for our status in society. Shove (2003) describes our need for comfort, cleanliness and convenience as a “convention” that is “socially shared,” which means that we are guided by expectations set in society for our lifestyle, and electricity is the means to achieve it. This is supported by Gyberg and Palm’s (2009) study that showed successful energy-efficiency programs required suggestions that didn’t influence comfort or quality of life; this quality, it could be argued, is an expectation set from others. Godbolt, Aune and Sørensen (2014) argue that energy consumption is tied to “status aspirations” (pg. 138) which is a demonstration of how consumers fit in society. Stephenson et al. (2010) argues that our material culture, which is supported by electricity, demonstrates the actor-network theory that we are both influenced by, and a part of, a social network.

Electricity is so ingrained into our lifestyles that we rarely think of its impact; most of us think of electricity as a common good that should be available to us when we

need it rather than a commodity that we buy and sell. As such, asking consumers to change their energy consumption is equivalent to asking members of society to change their perception of how they live and what is acceptable. An extra layer of complexity is the gauging of just how much energy we use in our day-to-day lives, which is so overlooked, yet requires monitoring to understand the impact to the environment and to the economy.

Just as no one household is the same, no consumer of energy will take the same approach to energy conservation. Stephenson et al. (2010) borrow Wilson and Dowlatabadi's (2007) eloquent description of the situation, being a "quixotic simplification." However, to borrow from the metaphor (de Cervantes, 1863), this battle against a windmill, and all means of gaining the upper hand on how we generate and use energy, must and will be addressed through knowledge, rhetoric and attitude change.

Background: About NB Power and the Canadian Electricity Industry

NB Power is a publicly owned utility that is fully integrated, meaning that it owns the end-to-end service of generating, transmitting and serving the customer. It has 13 generating facilities that include hydro, thermal and nuclear generation. It serves 397,000 direct and indirect customers and buys and sells electricity from New England, Québec, Nova Scotia and Prince Edward Island to meet customer demand. It is the largest utility in Atlantic Canada with a net capacity of over 3,500 megawatts (MW).

Over the past 15 years, NB Power has refurbished major infrastructure, including the conversion of Coleson Cove Generating Station to burn Orimulsion coal in 2004 and

refurbishing Point Lepreau Generating Station in 2012. This refurbishment was done to extend the life of these generating stations and to upgrade their facilities to be more efficient and generate more electricity to meet growing customer demand. Currently,

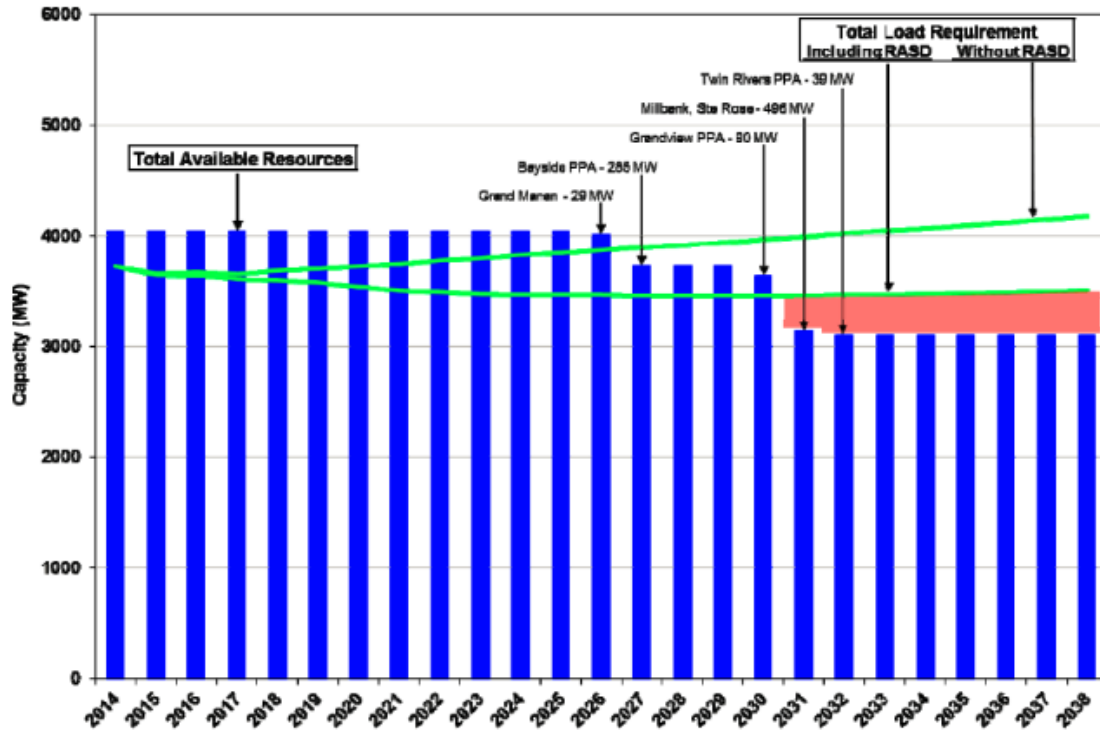


Figure 1 – A chart found in NB Power’s Integrated Resource Plan, noting NB Power’s total available resources by year compared to load requirement by NB Power customers. The green bars represent total load requirement with Reduce and Shift Demand (RASD) and without RASD, noting that RASD delays the requirement to find new resources by five years (NB Power, 2015).

NB Power is investigating options for the future of its largest hydro generating station, Mactaquac, which is estimated to cost between \$3 billion and \$5 billion (CBC, 2014) depending on the option chosen. If the company can reduce customer demand, it may be able to reduce the number of power plants that require refurbishment and, therefore, avoid future costs (NB Power, 2014).

Separate from the financial benefits, NB Power has been directed by its sole shareholder, the Province of New Brunswick, to implement Smart Grid technology, which can “maximize energy efficiency and reduce consumption” (Department of Energy, 2011) and to develop an electricity efficiency plan as part of the New Brunswick Energy Blueprint Action Plan. This plan also sets an objective for NB Power to have 40 % of its in-province sales come from renewable energy resources by 2020. NB Power is also required to meet the objectives of reducing its debt by \$1 billion to achieve an 80/20 debt to equity ratio by 2021 (NB Power). For these reasons, it is imperative for NB Power to achieve success in its Reduce and Shift Demand program as it projects less electricity to be consumed and a cost avoidance of \$927 million (NB Power, 2015).

The business impacts felt by NB Power, the growing cost of aging infrastructure replacement or refurbishment, along with the direction to run like a business and reduce greenhouse gas emissions from the Province of New Brunswick, are representative of what is happening in the Canadian electrical industry. In a report from the Conference Board of Canada on behalf of the Canadian Electricity Association (CEA), it estimated that electricity infrastructure in Canada, which saw its boom post-World War II and is aging, will require \$347.5 billion in investments between 2011 and 2030. In an effort to meet energy demands with minimal impact to the environment, there is a significant investment in energy research, development and design. In 2010-11, public spending in Canada totaled more than \$1 billion, with just over half of that coming from the federal government (Natural Resources Canada, 2013). The CEA has developed a sustainable development and corporate responsibility policy with a goal to “integrate and embed sustainability within company operations and business models” (CEA, 2015). This is due

to a changing electricity landscape that is seeing a growing demand for energy, attributed to the Asia-Pacific region (Natural Resources Canada, 2013).

The Reduce and Shift Demand program (also known as Smart Habits) comes at a time when many utilities are engaged in energy-efficiency programs. An analysis of the CEA membership shows that of the 20 utilities that deliver electricity to end-user customers, half of them participated in branded energy-efficiency programs, including NB Power's Reduce and Shift Demand program (CEA, 2015).

As such, an investigation of NB Power's strategy to introduce an energy-efficiency program such as Reduce and Shift Demand is an excellent case study for the changing electricity landscape in Canada.

Theoretical Framework – Grunig's Excellence Theory

The literature review not only points to the best practices for convincing customers to adopt energy efficiency program, but shows what Grunig's Excellence Theory of Communications (Grunig, 1992; Grunig, Grunig & Dozier, 2002) provides a solid theoretical framework. Many of the best practices mentioned in the literature review mirror the characteristics of Grunig's Excellence Theory.

Grunig's Excellence Theory is based on best-practice research commissioned by the International Association of Business Communicators (IABC) to understand best practices for public relations (Grunig, 1992). The study investigated the role that public relations plays in helping an organization achieve its objectives (Grunig, 1992).

The Excellence Theory is based on the premise that an organization's goals must be reconciled with the expectations of its stakeholders, as the stakeholders have the

ability to constrain an organization from meeting its goals (Grunig et al., 2002). This reconciliation occurs through developing quality, long-term relationships between the organization and the stakeholders (Grunig, 1992) to ensure alignment among all parties involved. The communications practitioner plays the role of mediator to balance the interest of the organization and its publics to manage potential conflict and hopefully gain alignment (Grunig, Grunig & Dozier, 2002).

Grunig outlined the characteristics of an Excellent Public Relations Program, which are summarized below:

1. At the **Program Level**, the communications program is managed strategically and not tactically.
2. At the **Departmental Level**, a single public relations department, separate from a marketing department, develops a two-way symmetrical model, with senior management, who have theoretical knowledge and demonstrate professionalism, have knowledge of the managerial role.
3. At an **Organizational Level**, the worldview of the department reflects two-way communications, the senior management sit at the decision-making table, the organizational culture is organic and internal audiences participate in the process.
4. At an **Effects of the Program** level, the program meets communications objectives and demonstrates how they meet business objectives, such as reducing the cost of regulation and litigation and helping to expedite the company achieving its goals. An effective program also contributes to high job satisfaction among employees (Grunig et al., 2002).

Although Excellence Theory describes characteristics of how a public relations departments is organized and engaged internal to the organizations, many of the characteristics identified in the Excellence Theory that identify characteristics evident to the public are aligned with the best practices cited in the literature review. Many of the authors analyzed in the literature review advocate the need to understand the perspective of the consumer and what mental barriers and drivers exist in their environment to change their energy efficiency habits (Godbolt, Sørensen and Aune, 2014; Aune, 2007; Chang, 2012; Green and Cappell, 2008; Claudy, Peterson and O'Driscoll, 2013). This aligns with Grunig's statement that communications is managed strategically at the program level (Grunig, 1992). Strategic public relations programs are based on research and environmental scanning and varying techniques, rather than a tactical approach. (Grunig et al., 2002). To effect change, one has to fully understand the situation and manage the communications to align strategically with the stakeholders' needs.

The characteristics of Excellence Theory at the departmental level, that of two-way symmetrical communication and knowledge of communications as a management tool, separate from marketing (Grunig, 1992), are demonstrated in Aune's (2007) advocacy of energy-efficiency programs being tailored to customers' needs. This is echoed in Gyberg and Palm (2009), who state that a one-way communication model to sell customers on energy efficiency oversimplifies the matter.

At an organizational level of Excellence Theory, Grunig holds the belief that a good relationship between an organization and its publics is built on a foundation of two-way symmetrical communications. This is echoed in Budinsky and Bryant's (2013) reminder that energy efficiency is a shared, universal responsibility among customers,

corporations and government. The use of a two-way model that is organic and encourages participation has the potential of reducing the blame game that Budinsky and Bryant warn may be a consequence.

Finally, the fourth set of characteristics of Grunig's Excellence Theory, that the program must meet an organization's business objectives that exist beyond communications objectives, aligns with Godbolt Sørensen and Aune (2014), who remind us of the economic factors that come into the play with energy-efficiency programs. As identified in the description of NB Power, Reduce and Shift Demand is a communications program that directly helps the utility meet the economic and policy objectives that are ingrained in their strategic planning. The alignment of Grunig's Excellence Theory aligns with Reduce and Shift Demand's objectives to not just raise awareness, but to change stakeholder behaviour so that it aligns with the corporate objectives.

Research Methodology

As seen in the literature review, there are as many approaches to convince customers to be energy efficient as there are means of generating electricity. A utility's ability to convince customers to practice energy efficiency is a complex social phenomenon that the majority of utilities in North America are in the process of addressing. As such, it is best analyzed by a case study, as per Yin's (2014) research criteria. Yin also identified that research questions of "how" and "why" are best for case studies, identifying *how* NB Power makes sense of electricity and energy efficiency and *why* there may be gaps, is best served through a case study. This applies to the thesis

questions where we require a qualitative analysis of language to understand how NB Power makes sense of energy efficiency. Yin also states a case study works “when the investigator has little control over events” (Yin, 2014, pg. 1), which again, is the case when providing an analysis of NB Power’s public-facing information.

Yin also states the case study is appropriate “when the focus is on a contemporary phenomenon within some real-life context” (Yin, 2014, pg. 1). Given the number of energy-efficiency programs currently happening across Canada, which is elaborated on later, the investigation of NB Power’s energy-efficiency program provides a good context to understand how utilities and we, as customers, make sense of electricity.

As such, we will be analyzing the example of Reduce and Shift Demand to provide insight into the challenges faced by other utilities as they use elements of Grunig’s Excellence theory to convince customers to align with their objective of being more energy efficient.

As this research is interested in how a utility communicates with its stakeholders, in this case, residential customers, the research will be a qualitative analysis of text used to communicate with residential customers on their website. Fairclough (2005) argues that discourses are elements of the social interaction in an organization and an essential part of organization studies. By understanding linguistic cues that occur in text and how they engage in conversation with their publics, we can understand the organization’s sense of self. For Fairclough (2005), discourse analysis provides a realist approach to understand the process and agency of the organization, which is separate from the intended process, and agency held by the organizational structure. In essence, no matter

the structure or intended purpose of the organization, discourse analysis, which includes analysis of text, provides clearer insight into the organization's sense of self.

A structured, conventional content analysis approach (Hsieh and Shannon, 2005) was used for researching NB Power's Reduce and Shift Demand program, which means research from the literature review provided a structured method of analysis for the text. Two sets of structured codes for content analysis were chosen; the first set of codes are the common benefits and barriers to convince customers to be energy efficient as found in the literature, and the second set of codes are the sensemaking properties of Karl Weick.

Based on reviewing the industry and literature, Fisk's theory of responsible consumption (Press and Arnould, 2009) recurred:

1. Financial incentives – Utilities have the view that electricity is a product or good that they buy and sell on the market. They encourage customers they can save on their power bill by reducing electricity consumption (i.e. reducing goods used or consumed).
2. Environmental appeal – Utilities appeal to the customers' desire to want to minimize their impact on the environment, emphasizing the reduction of greenhouse gas emissions or the use of renewable energy resources.
3. Moral/goodwill appeal – Utilities will appeal to customers wanting to do the right thing, whether it be not wasting power, ensuring a reliable supply for neighbours, or ensuring the public good.

Conversely, three of the six barriers identified by Throne-Holst et al. (2008), represent the overall themes preventing customers from embracing energy efficiency.

1. Financial investments – Consumers are required to invest in new technology to become more energy efficient, oftentimes the upfront costs are such that the payback in potential savings from the electricity bill takes a significant period of time. Examples of these investments include air exchangers for heating and cooling and installing solar panels.
2. Knowledge requirement – Customers are required to understand more about the direct impact of electricity use in their homes without any real-time information. Gyberg and Palm (2009), Press and Arnould (2009) and Fox-Penner (2010) all advocate customized coaching for customers to understand their consumption, which means increased knowledge of the grid.
3. Cultural barrier – As was presented by Shove (2003), electricity affords us a certain level of comfort, cleanliness and convenience that becomes the norm in our society. Thus, electricity has symbolic importance to our society (Owens and Driffill (2008) and changing our use is not rewarded or understood.

Given the frequency of these theories cited in the research, it provided a consistent model for analysis to compare the case study of NB Power's approach to other energy efficiency programs.

The other structured codes used in the content analysis are Karl Weick's properties of sensemaking. For Weick, Sensemaking can be used to analyze an organization where "the current state of the world is perceived to be different from the expected state of the world," (Weick, Sutcliffe and Obstfeld, 2005, 409). Sensemaking becomes a means of breaking down an organization's written and spoken text to understand how it is organizing itself and making sense of this new environment. This aptly describes the process NB Power is

experiencing, as their current state is influenced and altered by a changing business model, moving from electricity provider to energy advisor with Reduce and Shift Demand. Because the change occurring is based on how they interact with their residential customers, the sensemaking analysis is applicable, as Weick's believed that sensemaking occurs "in the social context of other actors." (Weick, Sutcliff, Obstfeld, 2005, 409). Just as Reduce and Shift Demand is a social exercise to engage customers to change their behaviours, so is sensemaking a social exercise. By using sensemaking as the lens by which we understand NB Power's discourse with customers, we understand its sense of self and how it will reconcile this transitional change.

By turning the organization's experience into categories or properties, Weick's sensemaking approach provides a means of analyzing and grouping an organization's interpretation of itself. The seven categories, and how they apply to NB Power, are as follows:

1. Identity Construction – For Weick, sensemaking is the process of labeling, noticing and bracketing details to construct an identity. For NB Power, this would be evidence of how they describe or label themselves and their stakeholders in relation to them. NB Power's identity would be cued by declarative statements about itself and their world.
2. Retrospective – For Weick, an organization understands its current situation by comparing it to what has happened in the past and seeing a pattern of events. As such, it is not possible for an organization to understand its current scenario in isolation from what is used to be. For NB Power, one can gain insight into how it understands its current situation by what past events it highlights as influencing its

decisions. Evidence of what led NB Power to make major decisions like engaging in Reduce and Shift Demand will provide clues into how it makes sense of the change and its role in addressing said change.

3. Extraction of Cues – The specific details highlighted or downplayed in text can provide insight into an organization's sense of self and how they perceive the change happening. This is the same process that is connected to the construction of identity in that we draw focus on *what* cues are labelled and categorized. For NB Power, the extraction of cues provides us with insight into its priorities and the source of influence on the organization's approach to change.
4. Plausibility – For Weick, making sense is to “connect the abstract with the concrete” (Weick, Sutcliffe, Obstfeld, 2005, 412), meaning that much of the cues extracted and sense made is based on abstract ideas held by an organization that is based more on a postmodernist view rather than a normative, objective reality. As such, organizations base their sense of self on abstract, although not necessarily factual or accurate, facts. Weick went so far as to say:
 - i. “Sensemaking is not about truth and getting it right. Instead, it is about continued redrafting of an emerging story so that it becomes more comprehensive, incorporates more of the observed data, and is more resilient in the face of criticism.” (Weick, Sutcliffe, Obstfeld, 2005, 415)

This postmodern view of an organization's narrative values perception of those sharing the narrative over fact. As the organization changes, its sense evolves based on how cues are prioritized. For example, NB Power may use plausible ideas that may be claims or exaggeration to support and promote Reduce and Shift Demand. Although they have prioritized this information and extracted

opinion as cues to define them, this is no less valid than basing their sense on quantitative fact. For them, the plausible holds weight.

5. Enactive of the Environment – Weick’s sensemaking properties are not an esoteric exercise of organizing cues and reflecting on previous experience. The second question of sensemaking, after “what’s going on here?” is “what do I do next?” (Weick, Sutcliffe, Obstfeld, 2005, 412). Sensemaking and actions are cyclical, as an organization tests the hypothesis of their cue extraction and organization, and the organization then reflects on the actions. For NB Power, one can interpret their actions, specifically what kind of actions, when, and with whom, as an indicator of how they make sense of the change. For example, if the focus is more on creating events rather than joining pre-existing events, it can reflect their sense of self and how customers perceive them.
6. Social Sensemaking – Cues that are labelled and categorized to identify the self are often done through discussion, reflection and opinion gathering, which requires a social element. Weick felt that the series conversation and debate across a system converges on an instance and that communication was central to how an organization made sense of itself (Weick, Sutcliffe, Obstfeld, 2005). In the case of NB Power, the social sensemaking is evident in how it refers to its stakeholders, whether as partners or customers. Their sensemaking is also influenced by cues extracted from social interaction that may not directly involve them, like best practices generated by technology , expectations set by customers, and direction set by their stakeholders.

7. Ongoing – As we saw in Weick's quote above, sensemaking is about continuous redrafting, with ideas being incorporated and tested over time (Weick, Sutcliffe, Obstfeld, 2005). Each of the sensemaking properties has a reiterative quality to them, with cues, plausible comments being extracted, tested, discussed and reframed. For NB Power, evidence of the ongoing sensemaking will provide insight into how it will continue to re-examine its extracted cues, continues to derive meaning from social exchanges with their customers and reshape the narrative.

The scope of the textual analysis focused on NB Power's corporate website, including documents that are linked to the sites. The textual analysis examined text that is directed towards customers from July 2012, when the Reduce and Shift Demand program was announced to the public, to December 31, 2015 including the following:

- public-facing products and services pages <http://www.nbpower.com/en/products-services> that outline the services offered to customers.
- the Smart Habits program <http://www.nbpower.com/en/smart-habits> that outlines the case for change for energy efficiency and the promotional programs available.
- the news and media centre <http://www.nbpower.com/en/about-us/news-media-centre>, that identifies the stories NB Power wishes to have in the news media and ultimately read by customers.
- the accountability and reports page <http://www.nbpower.com/en/about-us/accountability-reports>, that outlines the corporate direction, with the main audience being the provincial government and regulatory bodies. However, as NB Power has encouraged customers to be engaged and to offer feedback, it provides

a good sense of the organization's direction, but also a more factual and less promotional textual approach.

All content used for the analysis is text available to the public from www.nbpower.com. To narrow the scope, the pages that are written for residential customers, pages specific to Smart Habits, the NB Power blog, the news releases portion of the site (as these are news articles that would eventually be viewed by customers) and the corresponding reports and strategies mentioned in news releases, were analyzed. All parts of the website that were not part of communications to residential customers and Smart Habits were excluded.

Coding Process

The text on the web pages was reviewed and analyzed to find the elements of the two code categories, once for the benefits and barriers and another for Weick's sensemaking properties. If a statement provided evidence of one of the properties, it was pasted in a Microsoft Excel spreadsheet. Full sentences were copied as much as possible to retain the context of the comment and was hyperlinked back to the source material. A code to match sensemaking properties, for example, all codes that were relevant to the Plausible property of sensemaking was coded A4 while the first barrier presented by Throne-Holst et al. (2008) was coded B4. This allowed for grouping of like items or filtering. If a sentence contained evidence of more than one property, it was copied more than once with the appropriate code associated with each instance.

For example, the sentence "The rebate program is an important part of NB Power's long-term strategy to reduce future costs, reduce reliance on fossil-fuel energy,

and provide customers with tools to control their monthly bills” was featured in each of the news releases launching the rebate program. It was coded for the environmental benefits as it highlighted the reduction of fossil fuels (B2), for the financial benefits highlighted (B1), the social aspect of working with customers (A6) and also for plausible information as it assumed the rebates will change customer behaviour (A4). The code master is found in Appendix A of this thesis. Examples of these coded tables can be found in Appendix B.

The analysis of the Fisk’s benefits and Throne-Holst’s three dominant barriers was conducted first, and then a second pass at the website text was performed, looking for Weick’s sensemaking properties. The coded text examples were then grouped by individual sensemaking properties, barriers and benefits. A read-through of selected cues grouped by coded category led to more recurring themes appearing.

The coded categories were also grouped by year and type of publication to provide smaller chunks of information to see if any themes arose from focusing on the extracted material. This helped to identify how language changed over time and what cues were important in context. For example, the placement of factual finance information was more dominant in government documents rather than blog posts, which provides insight into NB Power’s sensemaking process.

Once a list of potential trends and themes were generated based on grouping, labeling the extracted codes, the themes were validated by going back to the source material to determine how the dominant themes were used on the web pages and whether these narratives were what NB Power wanted to continue into a discussion.

An iterative process of using word clouds, examples available in Appendix C, to identify the most common groups of words used was completed to validate whether some themes were recurring. This provided a visual cue of whether certain key words were prominently used and helped direct the search on the web pages. Any words that were frequently used were then grouped and their prominence was assessed by use on the website. For example, an initial read of the website left the reader with an impression that NB Power was enthusiastic for Reduce and Shift Demand's contribution to its future beyond the ongoing sensemaking properties. This possibility was affirmed by the dominance of the word "will" found in word clouds. A review of the source material resulted in the discovery that much of the text written for Reduce and Shift Demand is in the future tense and the regular reiterations of the program being an objective NB Power is striving for, as in, not achieved, but will be.

For codes that were quotations, the source of the quote provided context into the importance given the quote, with quotes from the CEO and Chair, those steering the organization, given importance, but greater importance given to the Premier of the province.

The themes were then analyzed in the context of the text itself. If text was used on web pages, it was directed at the customers and provided a sense of how NB Power talked to their customers directly. However, if text, particularly messages from senior management, were in reports, it was assumed the messaging did not have the purpose of persuading customers but was directed towards the policy makers who are concerned about economic impacts, as implied by Godbolt's (2014) findings.

Analysis

Analyzing the text on NB Power's customer-facing web pages brings up specific themes used by the utility to convince customers to be more energy efficient. As well, while NB Power is convincing customers to change their mindset to embrace energy efficiency, it is also in the process of changing its mandate and reason for being. This can be seen as statements are coded into Weick's seven properties of sensemaking.

Benefits and Barriers Analysis

When coding for benefits and barriers, it became evident that the benefits were significantly more prevalent than the barriers. Language that identified the benefits included positive terms like "help," variations of the word "save," "proud" and "need." This was evident when the benefits were compared to the barriers. Not surprisingly, the benefits were support material to each energy efficiency tip. The benefits were used as points of elaboration in each of the news releases for efficiency programs and reasons why customers should participate. For example, the lead sentence in a 2015 news release on rebates starts with highlighting the benefits of "helping New Brunswickers save money and energy..." (NB Power, 2015). Each paragraph in this news release highlighted a benefit to adopting energy-efficiency behaviours.

The more the text on the web page was directed at the customer, in this case, text on the page meant for customers to read when setting up their power compared to lengthy, technical documents, the more the benefits were highlighted. The page identifying tips for customers is labeled "Smart Habits," another term that demonstrates the positive benefit to being more energy efficient. Another example is the sub-heading

on the residential customer home page, which uses the term “help” and “helping” (NB Power, 2015).

Any use of the barriers is identified with similar terms to the benefits, but with a more negative connotation. For example, the discussion of energy-efficiency programs that discuss the cost of installation or the sacrifice required by being energy efficient, for example, taking shorter showers, reminds customers that effort is required to be energy efficient. Conversely to the use of benefits, the language of barriers in the form of sacrifice to the customer and costing more to both customer and utility are featured in the documents where the primary audience is not the customer but the stakeholder, the Province of New Brunswick. The annual reports and strategic plans highlight the costs of the programs, information that is not included in the web pages or media releases. As well, the terms and conditions that are agreed to for rebate programs such as the home insulation program are unformatted PDF documents rather than part of the more visually pleasing web template.

The dominant method of framing benefits and barriers by NB Power was through the vocabulary of cost, savings and dollars. Reading through the selected items coded for both benefits and barriers first identified the recurring theme of costs and dollar savings. This was partially verified by a placing the text in a word cloud generator that presented more commonly used words like “save” or “savings,” “money” and “cost.” When the examples were sourced back to the original text, these dollar-oriented benefits were strung throughout the narrative. Even the two other benefits identified by Fisk were often accompanied in the same sentence with a financial benefit and were never standalone.

For example, this statement appeared in the message from the Chairman in the 2014/15

Annual Report:

Over time, the participation of our customers in energy-saving activities will help avoid costs and green our grid by reducing our reliance on fossil fuels and imported energy. (NB Power, 2015)

In this example, the environmental benefits are bookended by micro-level cost savings for the customer and NB Power, and macro-economic view of trading electricity from other provinces.

Sensemaking Analysis

When examining the text through the code categories of sensemaking, there were recurring codes that led to higher-level themes. Like the benefits and barriers, each of the code categories was grouped by year and by code category. The coded text was read by category to determine if there were common concepts or themes by code. It was then verified by creating word clouds to see if words that one would associate with those themes were dominant in the text. The initial list of themes based on the initial read and word-cloud analysis were then tested, first by going back to the source text on the site to see if the ideas were highlighted compared to other key messages, and how often these themes occurred.

Sensemaking – Identity Construction Analysis

When examining sensemaking properties that demonstrate NB Power shaping their identity, there are examples of NB Power's confidence in their expertise. For example, there are statements to the effect of "we are the experts" and "we know the

power of nature.” The integrated resource plan uses cited material from institutes and refer to best practice models used (NB Power, 2015). There is a sense the NB Power is positioning themselves as the source of knowledge for understanding energy efficiency.

Any elements of identity construction that mention strategic direction also mention that the Province of New Brunswick mandates the direction. For example, the vision of what NB Power will be is outlined in the Energy Blueprint authored by the Department of Energy and Mines. Included in the Energy Blueprint are instructions for NB Power to develop a reduce and shift demand program for the province. The Integrated Resource Plan (IRP) that outlines the 30-year projections of electricity demand and options for supply is required as part of the 2013 *Electricity Act*.

There are frequent mentions of reliability and rate commitments that NB Power must adhere to, which are mandated by both the 2013 *Electricity Act* and the 2011 Energy Blueprint. NB Power points to reliability and low and stable rates when demonstrating their responsibility.

Along with the mandated direction set by government, there is an acknowledgement that the business is changing, particularly in government reports. NB Power describes the change in the industry as a response to the change in customers’ lifestyle. The change to become an energy-efficiency partner is parallel to their customers’ ability to choose, have control over consumption, and convenience, mostly due to changes in technology. To reflect the change, and to highlight the Reduce and Shift Demand initiatives, NB Power uses a play on words with the term “shift.” For example, CEO and Chair messages use the phrase “I look forward to the shift,” or “a shift is underway,” used in the 2012/13 Annual Report (NB Power, 2013) and 2013 news

release (NB Power, 2013). The word shift is also used in the name of the electronic vehicle demonstration, “Shift Your Ride” that occurred in 2013 (NB Power, 2013).

Sensemaking – Retrospective Analysis

As found in the analysis of benefits and barriers, the need to reduce costs is the dominant story told in the retrospective analysis. Cost reduction has been the reason behind many of initiatives to transform NB Power over the past few years, including a Transformation project to reduce workforce and expenses and the cost reduction that will be experienced when a new generation facility is not required when the Reduce and Shift Demand program achieves its targets. Although reliability is important, particularly during the lessons learned from outages during storms, cost reduction remains the fundamental purpose for reducing and shifting demand.

Many of the lessons cited that contribute to NB Power’s direction are lessons learned from outages, cost-cutting initiatives and projects. With the exception of the storm outages, the lessons and subsequent changes aren’t articulated. For example, NB Power’s information on the LED street light program (NB Power, 2013) mentions that there was a positive business case demonstrated, and some mention of lessons learned from a pilot, but no detail on the lesson learned. There are some estimates provided on how much possible electricity was saved as part of the rebate program to buy light bulbs and energy-efficient thermostats, however, the estimates are based on potential power saved rather than examining any retrospective change in electricity use.

This direction to reduce costs is directly set by the Province of New Brunswick through the new *Electricity Act* proclaimed in 2013, as mentioned in their annual reports and Integrated Resource Plan (NB Power, 2014) or direction set from the Energy

Blueprint document authored by the Province (Department of Energy, 2011). The specific objective of reducing NB Power debt by \$1 billion is a direction from the Energy Blueprint. This is also the estimate savings that NB Power anticipates will come from Reduce and Shift Demand, as cited in the President's message in the 2014/15 Annual Report (NB Power, 2015)

Sensemaking – Cue Extraction Analysis

The majority of the text coded for cue extraction had the theme of incorporating the use of energy in the language and using quantitative measures and facts, most of them cost-related, to demonstrate the need for Reduce and Shift Demand.

One of the more interesting trends in code shifting when analyzing the cue extraction properties of sensemaking is NB Power's shift from using the word electricity to the broader term energy over the course of time analyzed. The more traditional term "electricity" was the description used in text from 2012, for example, the 2012/13 report described NB Power's vision of "a sustainable electricity system." (NB Power, 2013). The term energy is incorporated more into the descriptive language of NB Power's mandate, as seen in the 2013/14 Annual Report when the nuclear generating station is "ensuring 75 per cent of New Brunswick's electricity demand is met by non-emitting or renewable energy sources by 2020" (NB Power, 2014). Energy and Smart Grid are incorporated more into the description of NB Power's business. By 2015, the language shifts to "wind energy" in their quarterly reports and describing the newly appointed members of the board of director as having "a wealth of experience in the energy sector" (NB Power, 2015).

Many of the facts cited are used to support why NB Power is moving to a smart grid, part of the Reduce and Shift Demand program. As seen in the textual analysis of Fisk's three-legged stool of benefits, the cost savings are highlighted in the cues extracted. Many of the references have an association with dollars while very few have any measure referencing or measuring electricity itself. The tools provided to the customer are categorized by how much it will cost to implement (NB Power, 2015) and the tool to measure and understand kilowatt hours is ultimately calculated into dollars.

Specific measures were used to demonstrate what the energy saving programs have achieved so far. The news releases for each of the LED street light programs consistently mentioned the "positive business case" of \$6 million in savings over 20 years that determined the approach was feasible (Note the value is in dollars as opposed to kilowatt hours or tonnes of greenhouse gas emissions). Later news releases for the rebate programs cited potential savings. For example, citations of the 2015 rebates on programmable thermostat and water-efficient showerheads (Note: not referred to as "low flow" as they are commonly termed) have included the potential savings, this time, in both dollars and kilowatt hours.

Sensemaking – Plausibility Analysis

Plausible language contains more use of adjectives, sometimes to a hyperbolic state. Rates are "low and stable," programs are "ambitious;" NB Power describes itself as "proud" to be engaging with customers; debt repayment is "aggressive." The majority of statements that would be classified as plausible are found in the quotes in news releases or messages at the beginning of quarterly or annual reports. For example, this quote from President Gaëtan Thomas, featured in a 2013 news release on the annual report:

"During the past year, NB Power made great strides toward achieving our vision of being a top performing utility in North America," said NB Power President and CEO, Gaëtan Thomas. "A shift is underway at NB Power; one that will positively impact New Brunswick's energy future and offer our customers low and stable rates, and more choice, comfort and convenience in the future." (NB Power, 2013)

The language used in the quotes express a great deal of confidence in NB Power's ability to achieve its vision as well as serve the customer. In this quote, Thomas provides a confident description of NB Power's progress to becoming a top performing utility, which is greater than the objective to be in the top quartile, as laid out in their strategic plan. Thomas sets the expectation that NB Power will meet two of Fisk's three benefits, lower cost and greater social benefit in comfort and convenience.

Examples of plausibility in NB Power's sensemaking are assumptions they make about their customers behaviours. In the above quote, Thomas is assuming the change NB Power will make will have a positive impact on customers. Although that may be the goal, it is not necessarily a certainty. Another example can be found in the 2015 news release on the Smart Habits rebates:

Since October 2013, NB Power customers have taken advantage of \$2.3 Million in incentives and saved 19 Million kWh worth of energy or about \$2 Million worth of electricity. (NB Power, 2015)

This quote makes the assumption that the purchase of energy-efficient light bulbs and water-efficient (not low-flow) showerheads has translated into a reduction of energy (not electricity).

However, there is no evidence presented other than the potential if all purchased devices were used and used properly.

Sensemaking – Enacting of the Environment Analysis

NB Power's sensemaking through action is done mostly through customer engagement, either by rebates, contests, or meet-and-greet events as part of other larger events. In the time from July 2012 to December 2015, the majority of public engagement was conducted to promote Reduce and Shift Demand. The majority of NB Power's promotional events were associated with other events, for example, a booth and electric vehicle demonstration at the Harvest Jazz and Blues Festival or an information booth at the Boyce Famer's Market, both in Fredericton, in recognition of National Electricity Month. If the events were not tied to Reduce and Shift Demand directly, the topic was how to better manage power bills, held in communities across the province.

NB Power also hosted a Beat the Peak Challenge in January 2015 to encourage selected cities and towns in New Brunswick (Fredericton and New Maryland; Dieppe, Moncton and Riverview) to submit electricity-saving ideas for a chance to receive a \$10,000 investment in their local YMCA. NB Power also promoted Save Twice programs on LED light bulbs, water-efficient showerheads and programmable thermostats. The program was expanded in 2015 to include some appliances and was rebranded as Smart Habits rebates. A second program was included in June 2015 for home insulation and a third for ductless heat pumps. These programs are managed by the division of NB Power that was formerly known as Efficiency New Brunswick, a separate government-run efficiency agency that joined NB Power in April 2015.

In essence, the majority of actions based on Reduce and Shift Demand centre around education on how to reduce costs for the customers.

Sensemaking – Social Analysis

Much of NB Power's text on their website touts partnerships with other organizations on top of their move to educate and engage with customers. Many of their actions include a partner. For example, The 2011 Energy Blueprint issued by the Department of Energy identifies "Smart Grid Technology and Innovation" as one of the energy action plan items. The program to implement Smart Grid Technology was announced as a ten-year partnership with Siemens Canada, known as Reduce and Shift Demand. In fact, the first sentence introducing Smart Grid on www.nbpower.com is "In 2012 we entered into a 10-year partnership with Siemens Canada to integrate Smart Grid technology into our electrical system and build Canada's first fully integrated 'energy internet,' which will enable communications between customers and their homes, power plants and distribution system. The partnership with Siemens Canada is featured in many of the news releases and events organized by NB Power, including any of the booths set up at cultural events. The launch of Siemens Centre of Competence in Fredericton was part of news release issued for the Reduce and Shift Demand program, with a quote from then-premier David Alward stating "We are pleased that Siemens Canada will create a Centre of Competence that will add approximately 40 new jobs in our province," said Alward. "Siemens Canada's presence in our province will be a tremendous catalyst for new opportunities in our communities, particularly in the Information and Communications Technology sector" (NB Power, 2012).

NB Power also highlights partnerships with other organizations that are viewed as experts in their field. The electric vehicle demonstration project, which investigated the possibility of incorporating car chargers into NB Power's service offering, highlighted

the relationship with “advocacy partners” (NB Power, 2013) Plug’n Drive, the Canadian Automobile Association and FleetCarma. The relationship with Plug’n Drive was demonstrated with a news release in December 2013 announcing NB Power’s CEO Gaëtan Thomas as a member of their Board of Directors.

Sensemaking – Ongoing Analysis

The ongoing analysis property in sensemaking is one of the least-used properties. Very little ongoing sensemaking is used on the website text as it is focused on present services offered. The ongoing property of sensemaking is found most in reports that identify a strategy that is in place, including the ten-year strategy and the integrated resource plan. Each of the quarterly reports for 2012/13 began by stating NB Power’s three strategies, the third being the investment of Reduce and Shift Demand. However, that is mentioned with the other goals of keeping rates low and stable while reducing debt by \$1 billion, which does not reflect on energy efficiency.

The Reduce and Shift Demand Program is positioned to benefit New Brunswick in the future, particularly when discussed in the Integrated Resource Plan (NB Power, 2014). In that document, the estimated savings is expected to be \$927 million in avoided costs, which is highlighted by the same chart showing supply versus demand with and without the program. Discussion on Reduce and Shift Demand is featured towards the end of the report, The IRP concludes with the position “The most cost-effective future resource mix is composed of renewable resources in the initial period to meet the RPS requirement, with continued emphasis on RASD.”

Themes found In the Analysis

The dominant themes found were as follows:

- Describing NB Power's customers – NB Power uses descriptors to position their view of the customer, including “central,” “control,” “manage” “choice,” “proud,” “committed,” “enthusiasm,” “expectation” and “smart.”
 - Helping educate customers - A subset for customers focuses on resources for customers – including “tools,” “habits,” “help,” “smart,” “education” and “serve.”
- Saving customers money - References to saving customers money were very dominant, with phrases like “stop paying for electricity they don't need,” “incentives,” “rebate,” “save twice,” “maximize savings,” “cost” and “value.”
- Future Focus – NB Power demonstrated their focus on the future by the common use of words and terms like “will,” “future,” “new,” the use of the future tense, and replacing the traditional term electricity with energy.
- Government Imperative - The final theme bridges with both savings and the future, in that the direction for the future is to focus on cost avoidance and financial wellbeing as set by the Province of New Brunswick, either through the *Electricity Act*, the Energy Blueprint or through requirements to report on progress quarterly. You also see influence in quotes from government officials announcing programs that will require capital investment. There are also terms such as “government mandate” and “clear mandate” and “committed.”

These themes and use of terms were then examined in context of what NB Power was communicating with their customers on the website.

Describing NB Power's customers

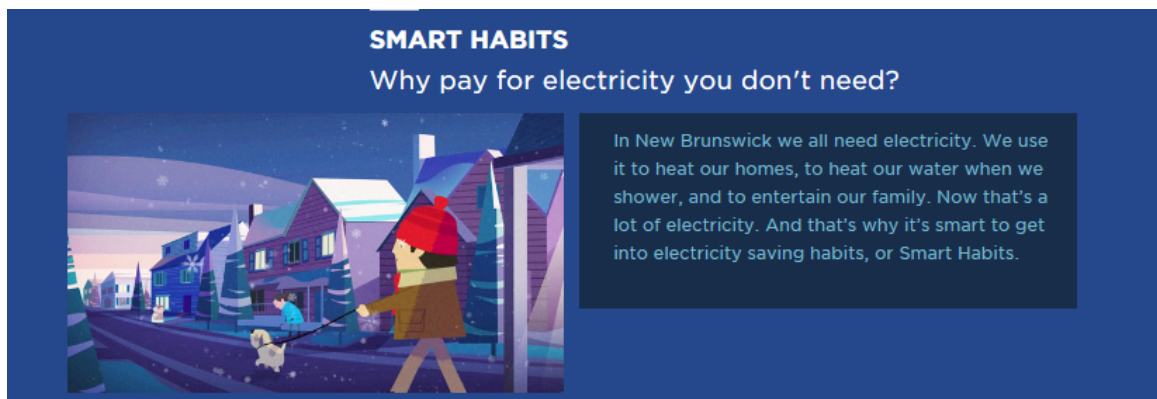


Figure 2 – The graphic and text at the top of the Smart Habits page on www.nbpower.com, demonstrating tools and resources to reduce and shift demand that its “smart customers” follow. The page starts with a challenge that it is “not smart” to pay for electricity you don’t need. The descriptor explicitly places the value of “smart” to adopting electricity saving habits on its customers.

NB Power has given cues to infer what behaviours its customers demonstrate to make Reduce and Shift Demand a success. By shaping its ideal customer, we get a sense of NB Power’s vision of a successful Reduce and Shift Demand program. How closely their current-day customers behave, as the ideal customer adopting energy efficiency habits, can become a measure of how the program is progressing and whether it will be successful.

When referring to the customer, NB Power uses language to indicate its customers are influential to the program. For example, the news release announcing Reduce and Shift Demand presented customers as being placed “at the centre of our electrical system” and “providing choices for customers” (NB Power, 2012). The sentiment of customers being central is also reflected in the 2012/13 Annual Report (NB Power, 2013). NB Power emphasizes customers as being central to every part of their

business. Rebate programs are described in the 2014 third quarter report as “tools to control [customers’] monthly bills.” (NB Power, 2014) The electric car demonstration was created “to ensure customers have access to the proper technology” (NB Power, 2013).

By highlighting the customer when explaining why a program is happening, NB Power is indicating the significance of their role. The text gives readers a sense of what the ideal customer is for NB Power, which is actively participating, making choices on the electricity consumption that align with NB Power’s vision, and being capable. The Reduce and Shift Demand program is framed as providing choice to customers. In annual reports, news releases and on the description of the Smart Habits page on the website, the program is described as using technology to provide better or more choices for the customer. The customer is viewed as being empowered to make choices and NB Power is the facilitator to provide those choices. The customer is ultimately in control of the situation as they possess the choice to participate in Reduce and Shift Demand. Customers are encouraged to share their energy-saving tips with others and are empowered to share their knowledge as part of the first Beat the Peak community challenge (NB Power, 2015). NB Power also indicates their relationship with the customer in the construction identity properties exhibited, in that they are the experts and source of information to share with customers and help them learn.

The customer’s identity, through NB Power’s lens, is a smart customer. Customers are assumed to have knowledge to participate in energy-efficiency community challenges and are asked to contribute their knowledge on how to save energy. The energy tips provided to customers are framed as “smart habits,” implying that their ideal

customer would be smart to “partner” with NB Power to participate in Reduce and Shift Demand. Even the rebate programs, which are customers receiving money back from buying energy-efficiency products, are framed as “tools” for customers to use rather than cash back or bonuses, implying customers have to have some skill or knowledge to participate in the program. Conversely, NB Power challenges customers on their Smart Habits web page with the question “why pay for electricity you don’t need?” The question is presented in a challenging tone, implying that there would be a reason customers would choose to spend money on something they don’t want. As this is the opposite behaviour NB Power is encouraging on their Smart Habits page, it implies that customers doing this are not, indeed, smart.

NB Power is constructing the identity of their customer as a well-informed, smart, able partner who is willing to work with the utility to achieve Reduce and Shift Demand’s goals. These qualities, which are valued in our society, provide an implied incentive for customers beyond cost savings. NB Power is appealing to customers’ desire to be considered smart and capable. At the same time, they provide insight into the final vision of how customers will work with NB Power to achieve energy efficiency.

Saving customers money

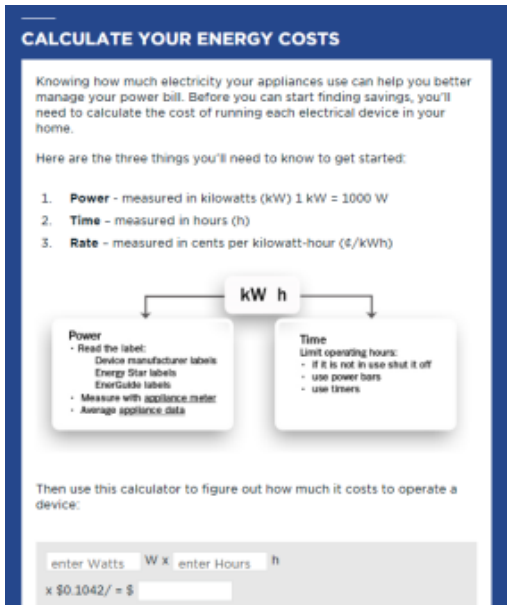


Figure 3

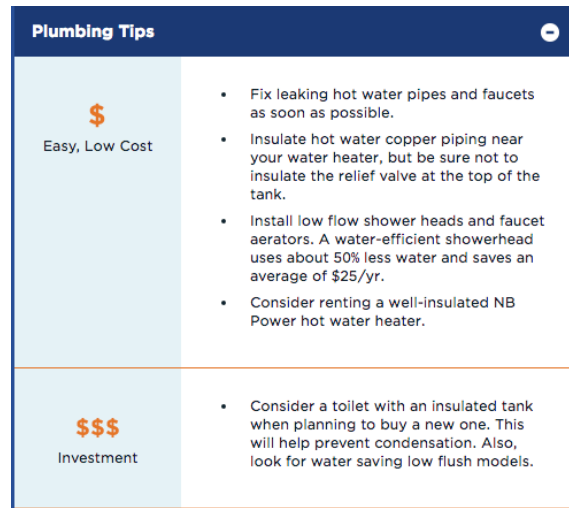


Figure 4

Figure 3 and 4 – Screen captures of the tools and resources available to teach NB Power customers to adopt Smart Habits. Figure 3 is a tool to calculate energy costs, with a description of the kilowatt hour unit. However, the final answer to the formula is measured in dollars. Figure 4 is an example of tips provided to reduce hot water heat. All tips are grouped according to the amount of investment required by the customer to implement.

The main characteristic of NB Power’s ideal “smart” customer is a customer who is driven by cost savings. Cost savings is the dominant argument presented to customers by NB Power to participate in Reduce and Shift Demand. The Tips page found in the Smart Habits section of NB Power’s website begins with talk of making small changes that “can make a big difference in your electricity bill.” (NB Power, 2016). Saving energy is directly linked to reducing a customer’s cost. The tips themselves are organized in categories of no-cost, easy, low-cost, mid-range, and investment, with a number of dollar signs associated with the level of cost. In this case, the definition of an easy tip is the decision to avoid spending money rather than skill, knowledge or effort.

Another example of Reduce and Shift Demand leading with the cost savings narrative is the number of energy efficiency rebates offered as programs. All programs offered by NB Power involve cost, which is the dominant incentive for savings. The driver for the customer to participation in the heat-pump rebate programs is to “stay warm and save” (NB Power, 2016). Staying warm, a social benefit, is not considered incentive enough.

As we have identified previously, NB Power’s ideal customer follows Smart Habits and uses tools provided on their website. The first tool on the smart habits page provides an explanation of the kilowatt hour, which is the unit of measure used by utilities to measure electricity use. The web page provides an online calculator to help customers calculate their energy use by calculating the number of watts used by an appliance calculated by the number of hours used on average. Rather than the formula calculating the number of kilowatt hours, it calculates the cost of the amount of electricity used. The page changes the unit of measure for electricity use to dollars rather than the true unit itself.

Beyond individual smart habits encouraged by NB Power, the cost narrative carries into the decision-making process for its major projects. Part of the Reduce and Shift Demand program includes a replacement of street lights in municipalities with LED lights. In each of the updates provided, NB Power cites the business case used to make this decision, which demonstrated \$6 million in savings over 20 years” (NB Power, 2012). PowerShift Atlantic, which is the preceding project and its research is a foundation to Reduce and Shift, examines using wind power more efficiently. That project is positioned as providing more renewable energy, and also a “plan to rebuild

of NB Power's business practices for many years to come. It also implies that achieving the objectives to Reduce and Shift Demand will not occur overnight.

Another indication of the future-forward aspect of Reduce and Shift Demand is the repetition of NB Power's ten-year agreement with Siemens Canada. The milestone used by NB Power to launch Reduce and Shift Demand was announcing the contract with Siemens Canada at a press conference co-presented by the two organizations. Emphasis was placed on the contract as a ten-year commitment during the announcement (NB Power, 2012) and is a common thread when describing Siemens Canada. NB Power positioned the opening of Siemens Canada's Smart Grid Centre of Competence in Fredericton as a milestone worthy of mention in its annual report, emphasizing, again, the long-term commitment Siemens has to the program and the signs of enthusiasm over the certainty of the future (NB Power, 2013).

NB Power describes the change in the industry as a response to the customers' changing lifestyle, which implies that it is ongoing and different from before. The change to become an energy efficiency partner is parallel to their customers' ability to choose, have control over consumption and convenience, mostly due to changes in technology. This implies that the change will run parallel to customers' ability, reliant on technology, until technology progression stops.

As mentioned previously, to reflect the change and to highlight the Reduce and Shift Demand initiatives, NB Power uses a play on words with the term "shift." For example, the CEO bookends his message in the 2012/13 Annual Report with the phrases "a shift is underway" and "look forward to our continued shift to a leaner, greener and more efficient organization" (NB Power, 2013). It was also used in the name of the

electronic vehicle demonstration, “Shift Your Ride.” There seems to be no description of what that shift looks like beyond more tools and building an “energy internet” in the 2014/15 Annual Report, so the shift does not provide insight beyond a play on words.

The vision for the future differing from today’s business can be seen in the use of the word “transform,” which is used to identify activities that mark a significant change in how NB Power provides services or works. The program to reduce costs and drive efficiencies in the day-to-day operations is referred to as Energy Transformation. The message from the Chairman in the 2012-13 Annual Report promises readers will see the results of transformation work that has taken place in the utility in the past two years. The transformation he refers to is the new 30-year strategic plan which includes Reduce and Shift Demand. It is also one of the three goals for the company and is highlighted in each quarterly and annual report. The emphasis of the program in directional documents identifies it as a significant contributor to NB Power’s transformation in the future.

The company is focused on “transforming how we do business,” as referred to in a 2015 news release. This particular news release announces NB Power being named to Greentech Media’s Grid Edge 20, as one of the 20 most innovative firms. By identifying this as a newsworthy event, even though it is not well known to their customers, NB Power is signaling the value they hold in being called one of the firms “to architect the future of the electric power industry.”

The focus on changing the business model for NB Power can also be seen in how they have evolved from using the more traditional word electricity to the broader, more progressive word energy, to describe the product they provide. The term electricity is often framed as a one-way service provided from generating stations, through

transmission and distribution lines, to the customer's home. Energy, on the other hand, has a broader definition that is often associated with renewable energy, which can be created and stored within the home and from smaller generating sources from communities and net metering. The change from referring to their business as electricity to energy signals a long-term change in the future of their business model, moving from the power plants, as their goal is to reduce the number of power plants NB Power has to rebuild, to providing energy advice on how to best manage more renewable sources.

To demonstrate the focus on a longer-term strategy, NB Power references the objectives laid out in their ten-year strategy in many of their reports and news releases, emphasizing that each decision contributes to a long-term strategy to change the organization. One of the objectives is implementing Reduce and Shift Demand. Its benefits focus on long-term goals like a "cleaner energy future" referred to in a June 2014 news release celebrating National Electricity Month. Its success also helps achieve the goal of avoiding costly generating stations in the far future, as mentioned in NB Power's Earth Day 2014 news release.

Customer engagement is focused on the future. The future tense is predominant in the blog postings on energy efficiency. The information booths at cultural events and blog posts are described as opportunities to show customers what their future looks like. One can infer from the focus on the future at public engagement sessions that NB Power is positioning Reduce and Shift Demand as not being business as usual.

Government Imperative



Figure 7

At left, image in 2013/14 Annual Report featuring Craig Leonard, Minister of Energy and Mines for the Progressive Conservative government of Premier David Alward (NB Power, 2015)

At right, image in the 2014/15 Annual Report featuring Donald Arseneault, Minister of Energy and Mines for the Liberal government of Premier Brian Gallant (NB Power, 2015)



Figure 8

The common thread throughout the sensemaking properties of cue extraction and retrospection was that of government's involvement and, in turn, NB Power's lack of agency in setting direction. Any document that outlines NB power's long-term strategic direction, including is the 30-year strategic plan and the three strategic objectives outlined, the ten-year financial plan, or the 30-year integrated resource plan, is a requirement by legislation or direction set by its primary shareholder, the Province of New Brunswick. For example, the vision of what NB Power will be is outlined in the Energy Blueprint authored by the Department of Energy and Mines (Province of New Brunswick, 2011). The IRP that outlines the 30-year projections of electricity demand and options for supply is required as part of the 2013 *Electricity Act*.

Not only does the Province instruct NB Power to create a strategy and to plan for the future, but they also provide direction on what objectives to meet and how to meet them. Included in the Energy Blueprint is a directive to have 40% of New Brunswick's energy coming from renewable sources by 2020 and to reduce debt by \$1 billion. Instructions on how to achieve this is outlined in the direction to develop a reduce and shift demand program for the province (Department of Energy, 2011).

There are frequent mentions of reliability and rate commitments that NB Power must adhere to, mandated by both the 2013 *Electricity Act* and the 2011 Energy Blueprint. The reliability and low and stable rates is identified as a by-product of Reduce and Shift Demand. Debt reduction is another mandate from the government.

The financial imperative from the provincial government is also demonstrated in where the discussion of cost and cost avoidance appears on NB Power's website. The first mandate given by the Province of New Brunswick that begins the ten-year strategic plan is "to operate like a commercial enterprise."

The provincial government's influence and what their priorities are for NB Power are also indicated by when and where quotes from government representatives are used in NB Power documents. Then-premier David Alward contributed a quote to the launch of Reduce and Shift Demand, highlighting the contribution of jobs to New Brunswick and the economic contribution to the information and communications technology sector of the province (NB Power, 2012). Job creation is also highlighted in a quote from Premier Alward as part of the release on the topic of PowerShift Atlantic, the research contributor of Reduce and Shift Demand in another 2012 news release (2012). These examples

demonstrate the economic imperative to grow the provincial economy as well as setting the long-term sustainable direction for NB Power.

The full cost of the program and the estimated cost benefits occur in the reports and plans required by the government. The full cost projections of the program, including the cost of the contract with Siemens Canada, is reflected in quarterly and annual reports. The discussion on cost avoidance, the \$927 million, is found in the Integrated Resource Plan (NB Power, 2015), required and aimed at government officials.

Findings

This analysis has found common phrases and words found on NB Power's website, as seen through the analysis of Weick's sensemaking properties (Weick, Sutcliffe and Obstfeld, 2005), Fisk's (1973) theory of responsible consumption, and Throne-Holst et al.'s (2008) households' barriers to energy-saving solutions. Upon further analysis and interpretation of these themes, we have insight into how NB Power makes sense of their current and potential relationship with customers, its direction from their shareholder, the Province of New Brunswick, its current situation, and its future.

Describing NB Power's Customers; the power shift between utility and customer

The social and enacting in the environment properties of sensemaking demonstrated the importance of customers in Reduce and Shift Demand. Almost all of the examples of NB Power in the environment were customer engagement activities. As well, the social cues identified the importance of customers as the "centre" of the electrical grid and integral to the program. As such, one can infer that NB Power's purpose is to serve the customer, as well as placing a more powerful position on the

utility-customer relationship. In previous iterations of NB Power, customers were dependent upon the utility to receive power, but had minimal agency beyond paying their bill on time, as there is no other means of getting electricity. In this current era of Reduce and Shift Demand, the level of dependency lies more with the customer as they are asked to use their influence, which is their consumption habits, to manage demand. As they are asked to invest in technology to become more energy efficient, partially offset by rebates, customers have the ability to say no to adopting Smart Habits, leaving NB Power with the possibility of the program failing. If Reduce and Shift Demand does not reach its objectives, NB Power may have to invest in refurbishing power plants in the long-term future, and lose the investment made in Reduce and Shift Demand. NB Power may have to make potential amends if customers feel dissatisfied with current or past service, as that will influence customers' trust and willingness to participate. NB Power is showing evidence of understanding this change in the relationship, as they published a lessons-learned document in 2014 after their service was impacted by two major storms, causing days-long outages for customers. In a sense, NB Power may want to partner with these ideal, smart customers, but NB Power must also recognize that these are the same customers who have a history with the utility that may influence how they wield this new-found power.

NB Power has, thus far, focused the conversation with their customers on cost savings. As such, NB Power assumes that customers will only be interested in the changes to their electricity bill from a bottom-line perspective. The more the focus is on the monthly bill, the more NB Power will have to demonstrate evidence of savings on the monthly bill. This can be a risk as other factors besides obvious consumption changes

may impact customers' bills. If customers look to their bill to determine whether Reduce and Shift Demand pays off, they may mistake other factors for an increase in their bill, such as a change in climate from one winter to the next, a rate increase, or an increase in electrical appliances in a home. Because of these factors, customers could get a skewed perception of Smart Habits' work to reduce and shift demand.

Currently, power bills do not reflect changes in the bottom line that would happen with a rate change other than the unit price of the power consumption. Power bills also do not indicate the impact of demand by appliance or total demand by certain times of the day, which could give customers better insight into how they can manage their consumption better. However, since the unit itself, the kilowatt hour, is translated immediately to dollars by NB Power on their website, customers will still focus on the total dollar value of the bill. The current "tools" offered for customers, rebates on light bulbs or thermostats, will demonstrate incremental power consumption changes that may take research by the customer to see and understand.

The other possible savings demonstrated by Reduce and Shift Demand are cost avoidance in the deferral of power plant rebuilding. These deferred or avoided costs may be too esoteric for the customer, especially when the language used by NB Power focused so much on the tangible power bill. Avoided costs, although important for a company to track to measure the success of a program, does not translate to savings on a customers' power bill. Hence, the focus on energy efficiency as a financial outcome does not provide a clear picture to the customer on how they will benefit.

Saving customers money: the hidden investment required

As demonstrated by the framing of the rebates as tools for NB Power's ideal customer and the dominant appeal of cost savings to the customer in the benefits analysis, NB Power assumes the appeal to save money will work the best to convince the customer to reduce and shift their demand. Although the financial incentives offered are available to all New Brunswickers, the Reduce and Shift Demand program privileges those customers who can afford to invest in the program. The rebates offered do not cover the full price of investing in the technology. Rebates on appliances are up to \$50, which can be less than 10% of the value of investing in the appliance. The largest investment, a heat pump installation, warrants a \$500 rebate to encourage customers to invest in a heat pump that will work during winter months. The electric vehicle program offers charging stations to customers who can afford an electric vehicle, which are traditionally more expensive than gas or diesel-powered vehicles. The limited resources offered for low-income customers may isolate the group of customers who are in the lower middle class and generate its own class system for how it treats customers.

Outside of the one program for low-income customers, the majority of the "tools" for smart customers are aimed at customers who have either the time to research the requirements or hire a contractor or specialist to work with them. The language used on the rebate sites uses technical terms like "HSPF" (NB Power, 2105), which is a heating season performance factor, and CEE tier II efficiency level heat pumps. The language can be construed as isolating and assumes a certain level of education with their smart customers, which is the opposite of providing a means of two-way communication.

Future Focus: NB Power's Misaligned Revolution to the Customers' Evolution

Although there is no question that NB Power's leadership is enthusiastic about the future with the Reduce and Shift Demand program, using terms like "transformation" and "shift," the language used does not align with the customers' involvement with the program. A shift or transformation implies a significant change in behaviour or environment. For customers, their participation in Reduce and Shift Demand has been limited to rebates on buying a different kind of appliance or product to perform the same function of lighting, heating or cooking their homes. This could potentially cause disconnect in attitude between customers and utility, which is supposed to be more partnered in their approach to energy efficiency. The misalignment in the language to the actions asked of customers demonstrates how different the perspectives are between NB Power and their customers of what Reduce and Shift Demand means, and can risk any sense of collaboration of two-way communication.

The concentration of strategic and more future-forward language like "energy" and "long-term strategy" imply that NB Power is providing customers with greater change and greater opportunity. It would be reasonable to assume that this level of enthusiasm from the service provider would match a revolutionary change in services offered to the customer, all for the positive. However, in the same timeframe where NB Power is immersed in the transformational narrative, customers are only experiencing a slow evolution with small incremental changes using rebate programs. The degree of change asked of customers does not match the transformational language used in the company text, particularly the messages shared by the CEO and the Chairman of the Board. As this is the beginning of Reduce and Shift Demand, it is understandable that the

rate of change could be gradual for customers with a greater strategic vision understood by leaders. However, the use of visionary and forward-thinking language can then be viewed by customers as hyperbolic, which could impair the level of trust in the utility. It may also cause a sense of change fatigue in customers when their service is transformed.

Given that this is in the first few years of the program, the vision of what that future will be in the text isn't clear other than a transformation will happen. Customers could perceive a misalignment between their understanding of the future and that of the utilities, which could result in the customers feeling less of a partner and more of a pawn.

Government Imperative: Shifting the agenda away from Energy Efficiency

As seen in the examples of retrospective sensemaking, all strategic plans and reports authored by NB Power are mandated through legislation from the Province of New Brunswick and the strategic blueprint provided by the Department of Energy and Mines. The Province also directs NB Power's objectives and the means of achieving them. The language used by the Chairman and the Chief Executive Office of NB Power indicate that the government has instructed them to provide financial statements to the public on a quarterly basis, which is the foundation of their quarterly reports.

The language that comes from government is used specifically when promoting the macro economic benefit that NB Power provides. Quotes from then-premier Alward in news releases speak about job creation, which indicates that the government views the importance of NB Power not just as a utility, but a potential contributor to the economy of New Brunswick. The economic imperative on a job creation and cost-avoidance is a strong driver for Reduce and Shift Demand, drivers that will not benefit the customer directly. Customer satisfaction and reliability are not part of the Province's criteria for

success. As such, the program may have competing priorities over the next 10 years, satisfying the NB Brunswick economy as a burgeoning technology industry or providing more choice and convenience for customers without increasing rates.

Helping Educate Customers: The missing Two-way Communication

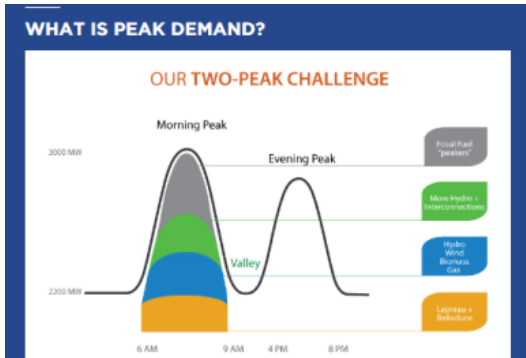


Figure 9

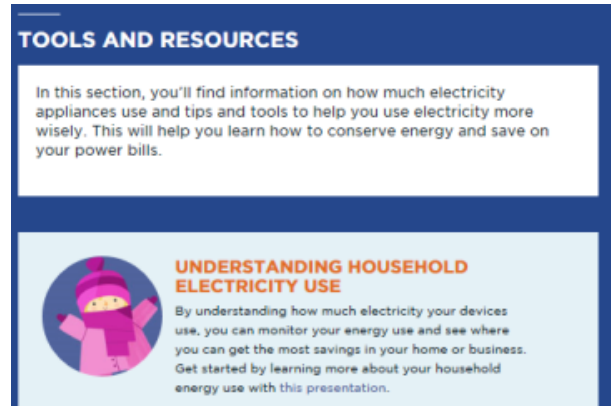


Figure 10

Examples of how NB Power engages with customers on their website. Tools on the Smart Habits page provide evidence of teaching customers about electricity use and instructing customers what to do rather than engaging them in a conversation of why they should be “smart”.

What is missing on NB Power’s website provides as much insight into Reduce and Shift Demand as what is on the site. As mentioned previously, much of the literature pointed to using a similar model of engagement and two-way communications with customers to encourage energy efficiency. As the goal of energy efficiency is to change customers’ mindset around energy use, one would expect qualities outlined in Grunig’s Excellence Theory (Grunig, 1992; Grunig, Grunig & Dozier, 2002) to describe NB Power’s interaction with customers.

The description of NB Power’s interaction with customers and their identity construction properties identifies a narrative of helping customers: helping customers

change their energy habits (NB Power, 2016), or to be their customer's partner of choice (NB Power, 2016), or providing customers with services and tools. The description of the relationship between NB Power and their customer varies. Customers are viewed as the centre of the electrical system and are given tools to choose, yet language also shows that NB Power is providing solutions for customers rather than empowering them to choose.

NB Power describes their role in language that would indicate a teaching mode, showing customers how to change their smart habits, and indicating that customers are empowered to control demand from the utility. The utility assumes that customers will want to be energy efficient. A comparison of how NB Power describes their customers and the language used when examining the sensemaking properties of plausibility indicate that NB Power does not believe there is any persuasion required and therefore no need to get customers to be aligned with their direction. The plausible language paints a picture of a very confident NB Power that is set to lower customers' costs and offer them more choice. At no point does the language assume that customers do not want to become part of Reduce and Shift Demand. This is echoed in the language describing NB Power's "smart" customers. It is assumed that customers will want to adopt energy-efficiency habits to save money. There is no persuasive language, only language that challenges customers. A clear example is the Smart Habits tagline "Why pay for electricity you don't need?" (NB Power, 2016). One can infer that NB Power feels their customers are already on board with Reduce and Shift Demand; all it has to do is provide the tools, no questions asked, collaboration or two-way communications required.

However, the model of Reduce and Shift Demand changes from being customers dependent on the utility to provide electricity to the program's success being dependent

on customers' changing behaviour. The control given to customer because of the smart grid, according to a 2013 news release on the utility's information booth at a music festival, is in its infancy stage. There are very little retrospective sensemaking properties identified on the website, which implies that NB Power is anticipating a fresh start with the customers they have served for many years. There is also very little language that speaks to building the ongoing relationship with customers and how they will become the centre of this future energy internet. That, and the lack of discussion on the cost of the project, which is found in government documents, indicates that NB Power's dialogue with customers may not be as open and transparent.

The language can also be possibly construed as patronizing for customers, as the utility refers to keeping customers "safe and connected" during power restoration and the utility putting money back in the customers' pocket as was mentioned in a 2015 news release. This language does not align with the story that NB Power tells of customers being in control. NB Power's description of how they engage with customers implies it is more in control of the relationship than providing an open dialogue. The public engagement sessions held in June 2015 to mark National Electricity Month was described in a blog post as "We love the idea of opening our doors," indicating a level of control by NB Power on when customers engage. This sense of NB Power being self-congratulatory over customer engagement can be seen in how they describe that they are "proud" to talk to customers, not responsible.

Discussion

NB Power's Reduce and Shift Demand program demonstrates many of the same challenges and responses as other utilities described in the literature. As such, some of the strategies and outcomes are aligned with what was found when examining literature through Fisk's theory of responsible consumption (1973), Throne-Holst et al.'s (2008) barriers to energy savings and Weick's sensemaking properties (Weick, Sutcliffe & Obstfeld, 2005). As a case study, NB Power's Reduce and Shift Demand program shares findings in the literature review. However, some elements expected from the literature review are not demonstrated in the website text, which may predict future challenges for NB Power.

Saving customers money: reflections of NB Power's sense of self

The language used by NB Power to describe their customers' role in Reduce and Shift Demand is more of a reflection of how they are making sense of the change and their identity construction properties of sensemaking rather than an accurate depiction of the customers. The persona of the ideal customer built by NB Power's narrative, that of a smart customer who uses electricity prudently and will automatically align with the utility's direction, assumes that customers are primarily interested in cost reduction and will use the tools provided by NB Power to practice smart habits. This could be because the main driver for NB Power is to avoid costs in the future by reducing the amount of infrastructure they need to build and maintain.

However, the inferred statement "all intelligent customers are customers who seek to reduce costs" is not a truism. Customers can practice the most energy-efficient practice

by chance, given that they may live in an energy-efficient home, as Hille et. al (2011) reminds us in Godbolt (2014) that energy-efficient homes themselves contribute significantly to energy savings beyond customer intent.

At the same time, the literature review tells us that customers, regardless of intelligence or capability, associate other meaning to electricity beyond cost. NB Power's narrative of Reduce and Shift Demand customer being focused on cost ignores the symbolic importance of electricity on our lifestyles and culture (Owens and Driffill, 2008; Shove 2003). Shove's work in particular points to society's conventions of comfort, cleanliness and convenience are reflected in resource consumption. The importance of societal convention and lifestyle is also one of the barriers preventing green behaviour, as identified by Throne-Holst et al. (2008). Neither of these authors ascribes a level of intelligence to consumers of electricity but implies values held. Customers hold other values as positive other than smart, which NB Power tends to overlook. This may negatively impact NB Power's ability to persuade users to adopt energy-efficient habits, smart or not.

The literature echoes NB Power's position that customers play a significant role in the outcome of Reduce and Shift Demand (Gyberg and Palm, 2009). Owens and Driffill (2008) point out in their research that such a transformational change requires a look at how electricity shapes our lifestyle and use that as a starting point. The literature advocates that an empathetic examination of customers' values would be a better starting point rather than assuming customers want to save money no matter the impact to their lifestyle.

Saving customers money: Cost savings versus cost investment

Fisk's original work in 1973 cited cost savings for the customer as one of the methods utilities could use to convince customers to be more energy efficient. This aligns with NB Power's approach. It is one of the most commonly mentioned motivators in the literature, which points to a successful outcome for Reduce and Shift Demand. In the real-time electricity rates project in a Chicago apartment building recounted by Gyberg and Palm (2009), customers who were driven to save on their electricity bill maintained their efficiency habits, which affirms customers' positive response to cost savings.

However, basing the energy efficiency discussion solely on financial savings and upfront costs may be isolating, as found by Fromm in Budinsky and Brant (2013). Customers in a lower socio-economic bracket may be sensitive to sharing whether they have the free cash available to participate in the rebate programs. Press and Arould (2009) also indicated that the people most likely able to invest in energy-efficiency programs are those who have disposable income to do so. The discussion on cost, combined with the requirement for customers to invest their own money to benefit from the rebates and programs, may limit the number of customers who have the ability to participate in Reduce and Shift Demand, let alone the desire. What is ironic is that those who would benefit the most from the cost savings, those in the lower socio-economic bracket, may be unable to participate.

One risk to Reduce and Shift Demand is the low emphasis on the moral and political "qualculations" made by customers in Godbolt's (2014) focus groups on energy efficiency. Many of the studies found that people who participate in environmentally friendly programs like Reduce and Shift Demand do so out of a moral consideration

(Godbolt, 2014) or from an inner sense of pride in their contribution to society (Barr and Gilg, 2006). As electricity is framed as a necessity, the driver for reducing costs isn't as high, as discovered when electricity consumption remained the same, even when a drought spiked hydroelectricity rates (Aune, 2004). Both Godbolt (2014) and Chang's (2012) research pointed to the idea that customers will bend to electricity efficiency, but only to a point where it's convenient and they no longer feel guilty. As literature shows, there is a myriad of drivers for customers to change behaviour; this means NB Power must look into other narratives that will appeal to customers. By missing opportunities to appeal to the consumers' desire to contribute to a societal good and to preserving the environment, NB Power may miss appealing to a portion of their customers. Even if Englis and Phillips's (2013) "30:3 Rule," where if the 30% of consumers who say they want to make environmentally friendly purchases, only 3% actually follow through, then there is a missed opportunity of consumers willing to make the investment. As well, this is not a zero-sum game where utilities can only choose one driver to focus on. Although there has been some progress demonstrated by NB Power as they placed some emphasis on environmental and social benefits as the program progressed, there is still room to grow.

Future Focus: Revolution vs Evolution

The focus on the future for NB Power is understandable, as Reduce and Shift Demand is a very new phenomenon for power companies. NB Power claims to be building Canada's very first 'energy internet' (NB Power, 2014). The plan is in its visionary planning stage, with broad detail and enthusiastic language used by the company, its CEO and its Chair. Much of the plausible sensemaking properties are

demonstrated when NB Power talks about the future. As seen through the lens of sensemaking, NB Power's plausible discourse focuses on their enthusiasm for the future, providing more choice for customers, and minimal retrospective sensemaking properties of where NB Power has been and the relationship they have had with customers in the past. However, these customers they are engaging with the intent of partnering on Reduce and Shift Demand, are the same customers who experienced the previous NB Power, including its old narrative of reliability and maintaining rates. The construction of their customers' relationship is based on opinions held through prior experience with the utility. Customers have a tangible past with NB Power, but the idea of Reduce and Shift Demand and smart grid is vague, even by the standards set by the Canadian Electricity Association, who calls the definition of smart grid debatable and used in different contexts. (CEA, 2015). By downplaying its prior iteration, NB Power's ongoing relationship with customers may be off balance.

The combination of differing contexts shaping their perception and the differing levels of enthusiasm to action puts NB Power at risk of being out of step with their customers. Abrahamse et al (2005) describe the change of customer habits as being gradual and over time, which is more aligned with what customers are experiencing and not what NB Power is describing.

Government Imperative: Diverging priorities

The dominant voice in the Reduce and Shift Demand program is not the utility but its shareholder, the Province of New Brunswick. The impact on NB Power's discourse, the focus on cost and savings, was predicted by Godbolt's (2014) research, when she noted that government policy makers often view electricity as goods and services. Even

though the Province of New Brunswick set renewable goals for NB Power as part of their Energy Blueprint (Department of Energy, 2011), the conversation on the NB Power site focuses on the cost avoidance, job creation and investment language predicted by Godbolt. The Province's first mandate to NB Power, to operate like a commercial enterprise, is a much different than the view of electricity companies as providers of a public good, held by Schulze et al (2008).

The literature indicates a role for government beyond the economic policy. The economic strategies set by government, including the rebates, can help bring customers on board, according to Lopes et al (2012). The key factor in the rate of solar panel adoption in European nations was influenced by government policy (Claudy, Peterson & O'Driscoll, 2013). There is an opportunity for NB Power to facilitate the conversation between their ideal "smart" customer and the Province of New Brunswick, as they both have agendas of saving money, to create a dialogue and start planning for a successful Reduce and Shift Demand program. It is important at this time, however, to remember the advice from Barr (2004), who found that the intent of energy policy can be tainted if customers feel that the energy policies are campaign rhetoric. This can happen when government supports environmentally friendly programs like Reduce and Shift Demand at the same time supporting less environmentally friendly initiatives (Godbolt, Aune, Sørensen, Ryghaugh, 2014; Press and Arnould, 2009).

Helping Educate Customers: The Risks of Not Collaborating

An ongoing theme found in the literature was the partnership and collaboration that ideally would happen between a utility and their customers, which is the same theoretical framework offered by Grunig's Excellence Theory. Godbolt, Aune, Sørensen

(2014) found customers' desire to be more energy efficient relied on their trust in the utility. Consider that energy-efficiency programs require trust from the customer for utilities to influence their power consumption, and customers would want to influence the program so as to not sacrifice their level of comfort, and honest, open exchange between utility and customer would be expected.

Although there was some evidence of that sentiment on the part of NB Power, that customers were central to this initiative and the goal was to provide choice, the remaining text paints a more one-sided view of the discourse.

As mentioned, the language of how NB Power talks to customers implies a sense of teaching, telling, or updating customers, rather than an open dialogue to persuade customers to be more energy efficient. Even when there are opportunities presented to customers to talk about Reduce and Shift Demand, they are presented on the website as opportunities given to them to talk to NB Power and NB Power setting the agenda. Gyberg and Palm (2009) state that the sender-receiver model of one-way communication over simplifies the matter, which may lead to an even bigger issue for such a complex topic. The model used by NB Power seems to contradict Aune's (2007) advice to tailor and customize the conversation based on the customer's needs and tastes echoed by Lopes et al (2012). It is also the advice of Claudy, Peterson and O'Driscoll (2013) who believe discourse, not information, influences the individual.

The interpretation of NB Power's website, through the lenses of sensemaking and benefits and barriers provides insight into NB Power's current mindset, how they are viewing the change of Reduce and Shift demand compared to their customers, the level of agency they have in the program and the relationship they are building with customers.

There is no doubt that NB Power is proud of the direction they are going as they use terms like excited and proud and talk a great deal about the future and what will be. They recognize this as imperative to their future and it plays a significant role in how they will meet their objectives of reducing \$1 billion in debt in the next 10 years and take them to the top quartile of North American utilities. The minimal amount of retrospective sensemaking language implies that NB Power sees this as a revolutionary break from their old operations, but it may run the risk of not learning from the past or not acknowledging customer frustrations.

The focus on cost savings, both from the customer level and the utility's policy and economics level, shows that the Province of New Brunswick has significant influence on NB Power. One could infer that the government of the day may influence the strategic direction of Reduce and Shift demand. Given the complexity of the electricity grid, and the complexity that gets layered on by seeing it through the lens of finance, NB Power has an opportunity to emphasize Fisk's two other benefits (1973), the environmental benefits and the contribution to societal good. As the latter two have a side effect of boosting customers' morale, they can prove to be effective if the direct dollars and cents change on a bill is not as great as one would expect.

Most importantly, NB Power has an opportunity to work with customers as prescribed by Grunig's model of two-way symmetrical communications (Grunig, 1992, Grunig, Grunig & Dozier, 2002). What may be a revolutionary change for the utility may be considered evolutionary for home owners who have moved from electric baseboard heat in the 1980s to heat pumps through the influence of society and technology. NB Power has an opportunity to look for dialogue opportunities with customers with no

agenda, present the financial situation facing the utility in a more forward manner, and start the dialogue to move forward with customers rather than bringing them along.

Conclusion and Future Studies

As we have seen in the literature, our relationship with electricity is complex. (Gyberg and Palm, 2009; Lopes et. Al 2012, Godbolt, Aune, Sørensen and Ryghbaugh, 2014; Abrahamse et al. 2007; Shove, 2003). As customers, we view electricity as “bound up in our routine and habit” (Shove, 2003, pg 395). It is the foundation of our lifestyle that is taken for granted (Owens and Driffill, 1998), and yet is an unspoken symbol of our definition of society (Godbolt, Sørensen and Aune, 2014) in that our sense of security and adhering to society’s standards is so important. There is a dichotomy of electricity being so vital, so important, yet not thought of.

For governments, electricity is seen as a commodity (Godbolt, 2014) that contributes to the economy and requires investment. The utility is a business that has a profit/loss statement and the government is its sole shareholder. The literature and the case of NB Power have demonstrated where a utility can be seen as an economic foundation in terms of creating jobs and fostering growth in industries. In New Brunswick’s case, a utility is relied on to foster the growth of technology and innovation.

For the electricity industry itself, the relationship with electricity is both as a commodity, in that the emphasis is on cost and cost savings; yet Schulz et al (2008) and the Canadian Electricity Association (CEA, 2015) still believe the importance of the utility’s role as fulfilling a public good. Government-owned utilities were established when it was not considered a profitable endeavour to provide electricity to smaller

populated communities (CEA, 2015). As such, there is still a sense of obligation felt that utilities must do what is best for the customers they serve.

Each stakeholder has a different perception of electricity, yet they all have the same goal for different reasons, that is, to reduce the amount of electricity consumed. However, this goal has potential side effects. For customers, they are asked to invest upfront costs and possibly impact comfort, convenience and cleanliness (Shove, 2003). For NB Power, they are investing in a program that relies on outside parties that affect whether or not there is a pay-off. The need to understand each of the other stakeholder's perspectives and the sacrifices and impacts is required to create a common approach and to work together to reduce and shift demand.

NB Power is facing similar challenges as other utilities in the industry. What the literature showed was that there is no guaranteed solution to encourage customers to be efficient and a mix of customized tools, coaching and incentives is required. NB Power is on track with their rebate programs and the desire to provide the customer with more tools to be in control. However, the research also showed that a collaborative relationship between customer and utility can be achieved by using Grunig's model of two-way symmetrical communications (Owens and Driffill, 2008).

Based on how NB Power has framed their relationship with their customers as education and making decisions for them, the one-way communications model indicates a potential risk in achieving Reduce and Shift Demand. There could be a variety of reasons why NB Power is using a one-way model of communications. This is the model they used previously with customers when they were electricity providers. It can also be that NB Power is not aware that their perception of the customer, which is seen by analyzing

their text through sensemaking and benefits lenses, is not a completely accurate view. One can also infer that NB Power has differing views of how customers perceive electricity, given their sharp focus on cost savings rather than the benefits outlined by Fisk (1973). The Province of New Brunswick's influence, as seen by how many times they are referenced and the fact that they are demonstrating the same fiscal policy-driven behaviours predicted by Godbolt (2014), adds another perception of electricity that deviates even further from the customer's perception and values.

As NB Power is close to entering the half-way point of Reduce and Shift Demand, it is time to learn from the case studies of other utilities in the literature and evolve their communications approach to one that is more open and collaborative. The first step would be to acknowledge the different ways each stakeholder makes sense of electricity and find a common ground. If NB Power continues to overlook the two other drivers Fisk (1973) suggested, they will reach a segment of the population but not all.

Because electricity is so integrated into customers' lives and carries such symbolic meaning to our society, yet not considered independent of itself, NB Power has an opportunity to have an open conversation on what it means to customers and to create a common goal of making their society, namely New Brunswick, a better place to live. That broader appeal would work with the cost savings driver. By drawing connections to society and lifestyle, NB Power can influence customers' societal expectations of cleanliness, comfort and convenience that drive their behaviour.

The second step would be to provide open, two-way communication with customers. NB Power's goals are New Brunswick's goals: to reduce the amount of provincial debt and to provide a more environmentally friendly place to live. By focusing

on the micro benefits of cost savings on their electricity bill, NB Power is assuming customers do not want to be part of something bigger. Although tools are important and will be used, the driver for customers lay in their sense that what they are doing is to form a partnership with customers.

This study had confirmed what many of the authors in the literature concluded, that electricity is more than charged particles that power machines. It is a foundation of our society; it shapes our role in society, as a customer, a power company or government. Our role also indicates how mindful we are of its existence and the symbolic representation we place on it, and impacts how we make sense of it. That symbolic representation and sensemaking differs based on our role. A person who works for the utility may have a different symbolic representation of power while they are at work, as it represents profit and achieving work goals, than they would at home looking at an increase in their power bill. Understanding our role and these impacts provides the context required to make us aware of the need to change our electricity use to be more energy efficient and what will appeal to us to change habits. It is only when we engage in Grunig's Excellence Theory of communications (Grunig, 1992; Grunig, Grunig & Dozier, 2002), gain a sense of each other's perspective and work together in a collaborative fashion, that NB Power, the Province of New Brunswick and their customers can engage with each other and work together to reduce and shift their electricity demand.

Future Studies

This study focused solely on the textual analysis of Reduce and Shift Demand from 2012 to 2015 from NB Power's perspective. Based on this research, there is an

expectation set that customers' behaviors may change and be more aligned with NB Power depending on the strategies used by the utility. Further study on customers' rate of adoption and demonstration of their sensemaking properties as a contrast to NB Power's narrative would provide insight into how similar each party's perception of energy efficiency is with one another and whether it would benefit from a model of two-way communication.

Further study into how NB Power's narrative changes with an evolved Reduce and Shift Demand program would provide insight into how NB Power's sensemaking has changed. A study that would examine the impact of a change in government will affect the mandate set for NB Power and how that impacts the narrative of Reduce and Shift Demand.

Appendix A –Coding Master for Coding Analysis

Sensemaking	
A1 - Grounded in identity construction: factors that shape our identity; context shapes what they enact & how they interpret; Each members perception of his or her role in the group State of flux, acknowledge the change is happening	A1
group interprets what has occurred	A3
A3 - Focused on the extraction of cues: to support our interpretation; help decide what information is relevant and what explanations are acceptable; notices, brackets and labels new role as a utility; taking cues and expanding them into explanations	A5
A4 - Plausible rather than accurate: cues that make SM plausible; don't bother with accuracy, interpretation and conflicting theories interpreting best practice; the credible sense (stories) the group makes of salient cues and ongoing events within the social context	A6
A5 - Enactive of the environment: our experience within an environment - as people speak, narrative builds, helps them organize experiences, action and learning to inform further action	A7
A6 - Social: contingent on our interactions with others; meaning created from conversations and relationships	
A7 Ongoing: SM has no beginning or end; dealing with the reality that members must act and respond as things continue to change	
Three Legged Stool/Three Barriers	
Economic Good (saves money)	B1
Social/Goodwill (good for society)	B2
Environmentally-motivated)	B3
Cultural barrier (desire doesn't matnach action, less trendy, electricity as afterthought)	B4
Economic barrier (investment in technology, no change in bill, energy stallwards have disposable income anyway)	B5
Information barrier (complexity of the topic, greenwashing)	B6

Appendix B – Examples of Coded Text

	A	B	C
1	Page	Text	Code
2	Products and Services Residen	New Brunswick electricity rates are the lowest in Atlantic Canada.	A3
3	Products and Services Building	Get us involved early in your building or renovating project.	A6
4	Products and Services Water H	NB Power only installs superior products.	A5
5	Products and Services Tree Ma	When we cut and prune trees, our goal is always to balance power supply reliability	A3
6	Products and Services Tree Ma	We employ forest experts who follow safety and science based standards for all pru	A5
7	Products and Services Tree Ma	We're the experts.	A1
8	Products and Services Tree Ma	Our goal is to keep your family safe and connected to the power grid.	A2
9	Products and Services Tree Ma	SOME HELPFUL TIPS:	A6
10	Products and Services LED Stre	Keeping these lights shining bright is one of our most important tasks.	A4
11	Products and Services LED Stre	That's why we're working hard to switch them all over to reliable, energy efficient L	A7
12	Products and Services LED Stre	Once all 72,000 LED street lights are installed, New Brunswick will benefit from ann	A7
13	Products and Services Embedd	The embedded generation program is currently under review to better align with ou	A1
14	Products and Services Embedd	We will launch our revised embedded generation program in 2015	A3
15	Products and Services Net Met	As New Brunswickers, we know the power of nature	A6
16	Products and Services Net Met	As New Brunswickers, we know the power of nature	A1
17	Products and Services Net Met	We also know that, for you, saving money and being environmentally responsible is	A3
18	Products and Services Net Met	That's why we created the Net Metering program.	A1
19	Products and Services Net Met	We're happy you've decided to explore our Net Metering program.	A6
20	Products and Services Net Met	We're happy you've decided to explore our Net Metering program.	A3
21	Products and Services Net Met	The Net Metering program is part of our overall strategy that demonstrates our con	A2
22	Products and Services Net Met	We recommend that you research the costs of the renewable energy source you are	A1
23	Smart Habits	In New Brunswick we all need electricity	A4
24	Smart Habits - Tips	And that's why it's smart to get into electricity saving habits, or Smart Habits.	A1
25	Smart Habits - Tips	Sometimes making small changes and adjustments can make a big difference in you	A3
26	Smart Habits - Rebates		
27	Smart Habits - Energy Efficiency	Installing a high efficiency, cold climate heat pump is a smart habit to get into, and f	A5
28	Smart Habits - Ductless heat p	NB Power reserves the right to create an expiry date or to modify or cancel program	A3
29	Smart Habits - Ductless heat p	The contractor then submits the rebate form to NB Power to be reimbursed for the	A6
30	Smart Habits - Ductless heat p	The contractor then submits the rebate form to NB Power to be reimbursed for the	A5
31	Smart Habits - Ductless heat p	NB Power has chosen an energy efficiency standard that is best suited for the NB cli	A2
32	Smart Habits - Ductless heat p	NB Power has chosen an energy efficiency standard that is best suited for the NB cli	A4
33	Smart Habits - Ductless heat p	NB Power does not endorse any particular participating contractor nor does it endo	A3
34	Smart Habits - Ductless heat p	Over 60% of households in New Brunswick use electric baseboards to heat their hor	A2
35	Smart Habits - Ductless heat p	These plants are very expensive to maintain, and several will be reaching the end of	A3
36	Smart Habits - Ductless heat p	These plants are very expensive to maintain, and several will be reaching the end of	A2
37	Smart Habits - Ductless heat p	In order to avoid having to build new power plants – which will cost a lot and may r	A1
38	Smart Habits - Ductless heat p	In order to avoid having to build new power plants – which will cost a lot and may r	A4
39	Smart Habits - Ductless heat p	In order to avoid having to build new power plants – which will cost a lot and may r	A6
40	Smart Habits - Ductless heat p	In order to avoid having to build new power plants – which will cost a lot and may r	A7
41	Smart Habits - Ductless heat p	That means fewer big and expensive plants, lower greenhouse gas emissions, energ	A4
42	Smart Habits - Ductless heat p	That means fewer big and expensive plants, lower greenhouse gas emissions, energ	A1
43	Smart Habits - Ductless heat p	While a company may be able to give you a price range over the phone you should	A6
44	Smart Habits - Ductless heat p	While a company may be able to give you a price range over the phone you should	A5
45	Smart Habits - Home insulation	The following Upgrades will be recommended at the discretion of the Energy Advise	A1
46	Smart Habits - Home insulation	The following Upgrades will be recommended at the discretion of the Energy Advise	A3
47	Smart Habits - Home insulation	Through the Home Insulation Energy Savings Program NB Power provides advice on	A5
48	Smart Habits - Home insulation	Through the Home Insulation Energy Savings Program NB Power provides advice on	A6
49	Smart Habits - Home insulation	NB Power's Home Insulation Energy Savings Program (herein referred to as "the Pro	A6

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