A Century of Siemens in Canada
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A CENTURY OF SIEMENS IN CANADA
One hundred years ago, on August 29, 1912, Siemens Canada Limited received its federal charter and set up an office in Old Montreal.

To mark this occasion and our century of progress, we have produced this book chronicling our history in Canada. It is a story in which all employees, past and present, can take pride. It presents the most authoritative study of our company ever undertaken, from our earliest days. Some employees and customers might be surprised to see how deep our roots go in Canada. But in these pages, you will discover the pioneering role that Siemens has played in shaping one of the largest and most productive countries in the world. Clearly, we are a Canadian company with a global reach.

Though 2012 marks our official 100th anniversary, Siemens’ roots in Canada go back even before the cable ship Faraday laid one of the first transatlantic cables in 1874–1875. Siemens can trace its roots to 1867 and the Confederation of the new nation. That’s when Sir William Siemens, Werner’s brother and the founder of Siemens Brothers in the U.K., sent a contractual letter to the Acadia Iron Mines in Nova Scotia. This was likely the first real link between Siemens and Canada, and set the stage for what is today a thriving Siemens presence in Canada, with a workforce of nearly 4500 people.

Today Siemens is one of the most respected employers in Canada—for three straight years we have been named among Canada’s top 100 employers and we have also been named one of Canada’s Greenest Employers for 2012. Today’s success is built on a foundation that goes back more than a century and has involved projects such as the Parliament Buildings, the CN Tower, the Louis S. St. Laurent icebreaker, the Supreme Court, the Montreal Neurological Institute, Niagara Falls, Canada Post, the Bruce Nuclear Generating Station, Hydro-Quebec, the Alberta Oil Sands, and the BC Ferries, to name a few.

With a full century of success behind us, our 100th anniversary year also points to the future, at the leading role Siemens will play as Canada assumes an increasingly important position on the world stage. Few countries can equal Canada’s economic and political stability, beauty, natural resources, and quality of life; likewise, no other company in the world can offer the green portfolio and solutions we provide.

On behalf of executive management, I am proud to recognize the performance and commitment of generations of employees who have bound Siemens to Canada for more than a century. Our kinship with Canada and its Confederation shows our commitment to Canada, and ultimately, our sustainability.

Canada is our home, and we will now forge ahead, providing our customers with the sustainable solutions they require to succeed, thereby continuing to earn their confidence in our ability to deliver answers to the major questions of our time. Today, as we have been for more than a century, we are the leaders in Industry, Energy, Healthcare, and Infrastructure & Cities. Now, more than ever, it is important for us to continue to grow with the country, like we have done since our charter in 1912, since the Faraday in 1874, and since Confederation in 1867. It’s time to celebrate our past, and take aim for the future.
The Story of Siemens in Canada

“As we enter our centennial year,” Canadian Prime Minister Lester B. Pearson announced in 1967, “we are still a young nation, very much in the formative stages.... No other country is in a better position than Canada to go ahead with the evolution of purpose devoted to all that is good and noble and excellent in the human spirit.” After 100 years, Canada had ample reason to celebrate: although young, it had overcome hardship and difficult times to prove itself time and time again on the world stage. With a rich history and a bright future, Canada’s story was a compelling one that promised to grow even better with time.

As Siemens Canada marks its own centennial, it too has many reasons to celebrate. Like the country that it calls home, Siemens Canada has grown and prospered in its first 100 years. From its first offices in Toronto and Montreal, Siemens Canada has become a thriving company, represented throughout the country. Despite global economic uncertainty, Siemens Canada is stronger than ever and ready for the next chapter in its own story.

One cannot celebrate the growth of Siemens in Canada, however, without also considering the development of Canada itself. The two are not separate; they are inextricably linked. For well over a century, Siemens and Canada have grown together, helping each other realize their full potential. Siemens Canada has been a pioneer in some of the most important and most iconic projects in Canada’s history, undertakings like the mighty Louis S. St-Laurent icebreaker and the spectacular success of Expo 67 that captured the imagination of Canadians and the world. Other projects, such as cutting-edge medical imaging technology and power generation equipment across the country, are making crucial contributions to the lives of Canadians every day.

While Siemens has left its mark on Canada, however, Canada has also made an indelible impression on Siemens. Since its very first days, Siemens has come to appreciate all that Canada has to offer. It has employed some of Canada’s brightest talents—including William B. Waite, to date the only Canadian-born CEO of Siemens Canada—and it has become a proud member of communities countrywide. It has also listened to the needs of Canadians and developed innovative products for the Canadian market. From medical solutions such as the Canadian-designed POLYSTAR digital workstation and the world-famous IPOD chair, to the mammoth bucket wheel excavators that work in the harsh environment of the oil sands and the ongoing refurbishment of the Bruce Nuclear Generating Station, Siemens has provided solutions to uniquely Canadian challenges.

That is why, as Siemens celebrates its 150th anniversary in Canada, one must remember the history of both Siemens and Canada. Since Confederation, those histories have been intertwined, a single story of accomplishment and growth. It is a story of dedication and innovation, of projects completed and challenges overcome. It is a story of telegraph cables and power lines, generators and telephones, but most of all, it is the story of the many Siemens employees whose hard work and ingenuity have made their company a success and of the countless Canadians whose lives they have touched. It is the story of Siemens in Canada.
Inspiration and Invention: The Foundation of Siemens & Halske

The story of Siemens in Canada begins with a dream: a vision of a strong, successful business, respected around the world. “From my young days it has always been my ambition,” Werner von Siemens (1816–1892) wrote to his brother, Carl, in 1887, “to build an enterprise of world standing... to give not only me but my successors power and authority in the world and also to provide the means to a better life for my brothers and sisters and close relatives.” Using his gifts as an inventor and businessman, Werner von Siemens made that ambition a reality, building his “enterprise,” Siemens & Halske, into a business known throughout Europe for its innovation and skill. Established in 1847 in a small Berlin workshop with 10 employees and a handful of lathes, Siemens & Halske quickly became a leader in electrical telegraphy, driven by the knowledge and skill of Werner von Siemens and his business partner, Johann Georg Halske. From its factories in Germany, England, and Russia, Siemens & Halske produced cable, telegraphy equipment, and other electrical devices that were famous across Europe for their ingenuity and quality.

Consulted by governments and its peers alike, Siemens & Halske developed a reputation for being able to complete any project, even those that seemed impossible, such as the incredibly complex and long telegraph line between London and Calcutta. As many as four of Werner’s brothers contributed to his ambition, taking their blend of business acumen and technical talent as far away as London, St. Petersburg, and Iran. Following the completion of the Indo-European Telegraph Line in 1870, an achievement that cemented the reputation of Siemens & Halske, Werner von Siemens could already see evidence of the immense success of his business, leading him, 17 years later, to exclaim with contentment and confidence: “It is an empire that I have founded, and that I would leave to my descendents unimpaired, so that they may continue to work in it.”

“Success and failure, victory and defeat, often depend in human life entirely on the timely and right use of the opportunities offered.”
– W. von Siemens, Recollections
A FAMOUS PARTNERSHIP

It all began in Berlin in 1847 with an agreement between a young artillery lieutenant in the Prussian army and a master mechanic who ran his own precision engineering company.

A year earlier, the officer—a promising young scientist and inventor by the name of Werner Siemens—had developed an improved version of the poster telegraph previously created by the English inventor, Charles Wheatstone. Building a prototype of his new invention from a cigar box, tin-plated iron, some ordinary copper wire, and a few scraps of iron, Siemens had tried to find someone who could mass produce the telegraph on his behalf. When his first attempts to find a capable manufacturer failed, however, Siemens turned to the master mechanic, Johann Georg Halske. A member of the Berlin Physics Society with Siemens, Halske was a skilled craftsman who had produced experimental equipment for many scientists of the day. Although he was initially skeptical of the young officer’s design, Halske was eventually persuaded by Werner’s passionate description of the potential of the new technology and his careful calculations of potential orders. In fact, Halske grew so supportive of the new project that he expressed his willingness to give up his existing business in order to work with Siemens. Soon he did just that, and with the financial help of one of Werner’s cousins, they formed their own company in Berlin on October 1, 1847: Siemens & Halske Telegraph Company.

The history of business is littered with the remains of numerous successful partnerships and failed ventures. Partners may share a vision about the future of their company or product, but that compatibility can be sorely tested when it comes to the day-to-day operations of a business. From the outset of their partnership, however, Siemens and Halske worked well together. Siemens, trained in chemistry, physics, and mathematics during his time with the military, had an inquisitive, methodical mind. Working tirelessly with existing technology to improve his ideas and the ideas of Werner von Siemens into reality, he will be remembered (among many other things) as the founder of the Museum of Applied Science, he will also be noted for his work in public life as a city councillor in Berlin and a member of both the French Legion of Honour and the German Pour le Mérite order. Siemens also had a unit of electrical conductance (SI) named after him in the International System of Units.

Over his lifetime, Werner von Siemens received a number of awards and honours, including an honorary doctorate from the University of Berlin (one of the first awarded by that institution), and he was made a member of both the French Legion of Honour and the German Pour le Mérite order. Siemens also had a unit of electrical conductance (SI) named after him in the International System of Units.

Ernst Werner von Siemens was born in 1818 in Saxony in what is now northern Germany to parents Ernst Werner Siemens (as he was known at the time) and his wife, Magdalena, who had been raised in an educated, upper-middle class family of 14 children. While his father, Christian, had studied agriculture at the University of Göttingen for several semesters, young Werner—who had received a wide-ranging education in topics from Greek to mathematics (in which he excelled)—hoped to attend the newly built Bauakademie in Berlin to study architectural engineering. The size of his family and his father's modest income as a farmer made that impossible, however, and at the age of 17, Werner Siemens left home to enlist in the army of nearby Prussia, where he was made a lieutenant in the artillery corps.

Werner’s decision to join the Prussian army proved fortuitous. His training there gave him a foundation in advanced mathematics, physics, and chemistry that served him well throughout his career, and his time on garrison duty in towns throughout Prussia allowed him to conduct numerous electrical and chemical experiments. It was his work with electric telegraphy, however, that led to many of his important early discoveries, most notably his improvement of the pointer telegraph developed by the English inventor, Charles Wheatstone. Following the formation of Siemens & Halske in 1847 and its rise to fame as a leader in electric telegraphy, Werner Siemens continued to develop new and important technologies. In 1857, he developed the ore line tube, which used electrically generated ozone to purify drinking water, and in 1867, he patented a dynamo, or an early electric generator, that used self-generating electromagnetic field coils to greatly increase its power output, making the industrial use of electricity possible for the first time. Enrolled in 1888 by Emperor Frederick 11 for his service to Prussia (allowing him to add the “von” to his name), Siemens is considered by many to be the father of electrical engineering in Germany.
and refine it, he had both a remarkable knack for identifying business opportunities and the desire to make Siemens & Halske a success. A meticulous, resourceful craftsman with an eye for detail, Halske had the necessary confidence for producing the precision products demanded by his partner. Also exceptionally focused on the growth of his business, Halske had the ability to manage an industrial operation, an absolutely crucial skill for any organization that wanted to manufacture products on a large scale. Together, the two men made a formidable pair, whose talents complemented each other perfectly.

From the very beginning of Siemens & Halske, the balance of skill, expertise, and natural ability was important. Motivated by his obligation to support his brothers and sisters, Werner Siemens elected to stay with the Prussian army, allowing Halske to establish the new business, supervise its daily operations, and manage its employees. This proved to be a fortunate decision: while serving with the army, Siemens was able to serve as a consultant with the Prussian Telegraph Commission, which was creating plans to develop the telegraph system throughout Prussia. This experience, and the contacts that it gave him, would prove to be a significant advantage in years to come. Siemens also cultivated contacts outside of the Telegraph Commission, securing contracts for his new company from the state railway company and the Russian ambassador to Prussia.

In the spring of 1848, less than a year after its creation, Siemens & Halske received its first major order: the construction of a telegraph line between Berlin and Frankfurt for the Prussian government. Built to transmit the political decisions of united Germany’s first parliament, the 500 km line was the longest in Europe when it was completed in March of the following year. One of its first acts was to transmit the news of the election of Friedrich Wilhelm IV of Prussia as emperor, an hour ahead of the actual event, a triumph that garnered attention throughout Germany and around the world. The whole project was so well-executed that before the line was even completed, the Prussian government had expanded its order to link nearly every major city in northern Germany with Berlin. In a little over a year, the young company had become a success.
In 1847, following the creation of Siemens & Halske, the very first Siemens workshop was opened at 19 Schönheider Straße in Berlin. With 150 square metres of space and three lathes, the new shop was adequate for the work of a fledgling business, but as Siemens & Halske rapidly grew, additional space was needed. Workshops for the installation and maintenance of products were established around, and in 1853, a new production facility opened at Mergelstrasse in Berlin. As sales increased and the business diversified, additional production facilities were opened in what would, in 1883, become the Charlottenburg works.

Toward the end of the 19th century, Siemens & Halske purchased a large plot of land in the Spandau district in northeastern Berlin, where it built several factories for the production of cable, telecommunication equipment, and dynamos. This large complex, covering over 200 hectares and featuring what was in 1912 the largest factory hall in Europe, came to be known as “Siemensstadt.” Serviced by commuter rail purposely built by Siemens to allow its employees to reach the complex in a timely manner, Siemensstadt served as the administrative centre of the company until the end of the Second World War, when it was largely destroyed by air raids and the invading Russian army.

Siemens Fabrik at Markgrafenstrasse in Berlin, 1875

Workshops and Factories

With so much work to be done by Siemens & Halske, Werner finally resigned from the army and dedicated all his time to the business. Siemens & Halske had expanded substantially during its first several years, as addition to its work on telegraph lines throughout Germany, the company was also producing other electrical systems, such as railroad bells and provers for applying seamless gutta-percha insulation to copper wires. Sales also increased, jumping from 10,300 marks in 1848 to over 253,000 in 1851. While Siemens & Halske was not yet a business empire, Werner’s dream of running a thriving business and being able to support his siblings was being realized faster than perhaps even he had imagined possible.

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Gutta-Percha Insulation

As is often the case with emerging technologies, available materials frequently lag well behind theory and technique. Such was the case in the mid-19th century, when poorly insulated telegraph cables resulted in the loss of current, short circuits, or distorted messages, severely hindering the performance of the lines. Poor insulation was particularly damaging to submarine cables, which were exposed to damaging effects of water and extreme pressure. Some form of effective, affordable insulation was needed, but what?

Introduced to Britain in 1843, gutta-percha proved to be the answer. The gum of a tree native to Southeast Asia, gutta-percha is a thermoplastic substance, softening in high temperatures, but returning to its solid form as it cools. This characteristic makes it exceptionally easy to mould, and it was initially used in a variety of decorative objects like plaques, figurines, and golf balls (a use that was never repeated; having perfected its gutta-percha process, Siemens & Halske was renowned for the quality and durability of its cables for the remainder of the 19th century—and well into the 20th century).

As the protection and insulation of the cable, Siemens soon devised a method for manufacturing seamless insulation using a screw press.

With the launch of Siemens & Halske in 1847, Werner’s method of creating seamless insulation became ever more important. It allowed Siemens & Halske wires to be used underground and, eventually, underwater, applications where poorly insulated cables would fail. In fact, when a batch of Siemens & Halske cables that had been created using improperly treated gutta-percha were installed in a German telegraph line, the result was the rapid degradation of the telegraph line itself, and the cancellation of numerous contracts for the company. Such an event was never repeated, having perfected its gutta-percha process, Siemens & Halske was renowned for the quality and durability of its cables for the remainder of the 19th century—and well into the 20th century.

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Carl Heinrich von Siemens

Born in 1829, Carl Heinrich von Siemens—often just known as "Carl"—joined Siemens & Halske in 1851. Initially based in London, where he assisted his brother Werner with establishing Siemens & Halske in the United Kingdom, Carl eventually travelled to Paris to found a new office. While that effort did not succeed, it did provide Carl with valuable business and management training, and in 1853, he travelled to St. Petersburg to oversee Siemens & Halske’s work in that large and lucrative market.

Following the outbreak of the Crimean War in 1854, the Russian Empire demanded the latest communication technology for its war effort. Siemens & Halske began building lines connecting most of the cities of the empire to each other and the rest of Europe. In total, over 10,000 km of telegraph lines were constructed, all under Carl’s supervision.

Soon, however, the Russian telegraph boom had paused, and the active Carl, always eager for a challenge, desired a change of scenery. In 1859, he returned to England to assist his brother Werner with the running of Siemens Bros. Ltd. It was during this time that he helped establish the submarine cable between Europe and North America, personally overseeing the cable-laying performed by the CS Faraday. According to Faraday, Carl spent several more years in London before returning to Russia to oversee Siemens & Halske. He revitalized the ailing Russian operations there once more. He revitalized the ailing Russian operations there once more. He revitalized the ailing Russian operations there once more. He revitalized the ailing Russian operations there once more.

In 1865, Siemens & Halske had completed telegraph orders for the line between St. Petersburg and Moscow, and in 1867, Carl was the perfect man for the job because "he was cool and deliberate, an excellent observer and resolute in action." Following the success of the Faraday Line, Siemens & Halske prospered. At Werner’s insistence, the company had worked to develop international contacts. Werner’s younger brother, William, was established as the company’s agent in London, and the business also expanded its connection with Russia. This effort paid significant dividends: in 1851, the Russian government ordered 75 pointer telegraphs for the line between St. Petersburg and Moscow, and by 1855, Siemens & Halske had completed telegraph orders for Russia that extended from Finland to the Crimea, a total of 10,000 km. In fact, those sales helped the company weather the financial repercussions of the loss of German business, and after 1853, the revenues from Russia far exceeded those from German sales. As a result, the Russian office of Siemens & Halske ceased to be dependent on the Berlin headquarters, becoming an independent operation under the direction of another of Werner’s brothers, Carl Siemens. Siemens's copper mine and metallurgical plant at Hüttenberg in the Gauau, 1845. The location was crucial to the success of the Indo-European Telegraph Line, supplying the huge quantity of copper wire needed for the project.

William and Werner had always been close. In 1835, after a lease spent with his family, Werner took the 15-year-old William with him to his new posting in Magdeburg, Germany, where they shared an apartment while William attended school. While there, Werner supervised the education of his younger brother, advising him to study English and personally teaching him mathematics. As he grew older, William—a very bright, inquisitive man—even collaborated with Werner on a number of experiments. It therefore made sense that Werner would send William to England in his place.

The trip was an incredible success. Despite his training in Eng- land, William’s group of the language was remarkably poor—only a few years later, he would claim that he barely managed to shoulder the English language. William returned to Magdeburg to resume his apprenticeship, but soon grew tired of his work and dreamed of returning to London permanently. In 1844, with Werner’s permission, he left Germany with more patents to sell and sought his fortune in England.

When Werner Siemens left to join the Prussian army in 1835, his parents were still alive and able to care for their large family of 14 children. Following the death of his mother in 1857 and his father the following year, however, Werner became responsible for his remaining siblings. The youngest of whom was a mere three years old. It was a heavy burden for a young man, and while Siemens took his new role seriously, he was in constant need of money. His experiments in electricity, which had begun several years earlier, became a way of potentially raising additional funds, and in 1842, he discovered a method of electroplating metals with silver and gold. Unable to travel due to his commitment to the army, Siemens sent his younger brother, William, to England in the hopes of not only patenting the invention, but of selling it as a means to raise money.

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Sir William Siemens

Carl Wilhelm Siemens (or “William,” as he was known to friends and family) was born in 1823. Exceptionally intelligent but notoriously restless, William was the fourth son of the large Siemens family. Educated at a private school and a technical school, William would later also study sciences at the University of Göttingen.

While still a student, William was appointed at an engineering factory after his older brother, Werner, decided that the young man should be an engineer. He briefly left the position in order to travel to London to sell his brother’s method of electroplating, but after that successful trip, William realized that his true calling was to lay submarine cables. It was a task that he would pursue for the remainder of his life.

Siemens Brothers

In laying the first operational submarine telegraph cable between England and France in 1850, Siemens & Halske—the company he co-founded as the telegraph business of the firm—had twice failed to lay the line, but Werner was able to create a formula for determining the appropriate speed of the ship when laying cable. Using his calculations, the line was successfully laid and more orders followed, giving Siemens & Halske the entrance into the lucrative English submarine cable market that it needed.

Taking advantage of this new opportunity required changes in the organization, and in 1858, Siemens, Halske & Company of London was formed. Signing a co-operation agreement with Newell & Co.—Siemens, Halske & Co’s cable purchased from the English company—the new business signed a number of contracts, including a line between Constantinople and Egypt, and a line to India under the Red Sea and Indian Ocean. However, no matter how big the business grew, Siemens, Halske & Co. always considered themselves to be more of a scientist than a businessman—established connections with some of the greatest minds in England, including the renowned physicist Michael Faraday. The guidance and support of these men proved invaluable to his business ventures.

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The distance between London and India, however, made communication exceedingly slow and often unreliable. While efforts had been made in the past to join India to Britain through telegraph lines, the technology had not been up to the challenge, and all that existed was a confusing patchwork of lines and languages. As a result, a single message sent from India to London had to be transmitted between 12 and 14 times by operators who did not speak English, let alone write it, and messages were often garbled or completely lost during transmission.

In 1856, William Siemens was approached by the British government about creating a single, unified line between Great Britain and India. Siemens & Halske was understandably interested in such a large project, but the line was delayed for a number of years by the Austrian-Prussian war and the complexities of running a line through so many different nations. After spending years in the planning stage, the project was finally free to proceed in the mid-1860s. After carefully assessing the project, Werner Siemens bid on the contract to build the line and won. Numerous difficult negotiations with the various states that would see the line pass through their borders followed, but construction eventually began in 1867.

Construction of the line was not, however, always smooth: an earthquake shortly after it opened damaged the submarine cable in the Black Sea irreparably, forcing a landline to be installed. Nor was the entire process without tragedy: Werner fell seriously ill with malaria, and the youngest Siemens brother, Walter, was killed in an accident in Georgia during construction of the line. The project did, however, cement the reputation of Siemens & Halske as the foremost telegraphy firm in the world. It also established Siemens & Halske’s capacity to undertake immense, complex projects and to succeed in the face of often overwhelming opposition. In fact, the Siemens engineering involved was so substantial that the line remained in service until 1931 (with a break from 1914 and 1923), and as of 1989, one iron pole, marked “Siemens Patent London,” was still standing on a beach at Gagra, Georgia, where it was being used by the state telephone company.

The enterprise was truly a family affair: no fewer than four of the Siemens brothers—Werner, William, Walter, and Carl—worked on the line at any time. Running from Lowestoft, northeast of London, under the North Sea to northwestern Germany, the completed line travelled through Poland, south to Odessa, under the Black Sea, and then through what is now Georgia and Iran before connecting the Arabian peninsula with northern India via a submarine cable and ending in Calcutta. Using more than 40,000 iron poles and 29,000 wooden poles, the line stretched 12,000 km, including a substantial stretch of submarine cable that would be laid where previous attempts had failed. In fact, the entire line was so long that Werner Siemens had to invent a new kind of relay telegraph that could transmit and receive messages without the use of intermediate stations and the human mistakes of their operators.

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When it was complete in 1870, the line was the longest in the world. Its inaugural message—sent from London to Calcutta as part of a demonstration organized by William Siemens—took 26 minutes, with an answer returning within an hour. At a time when the general public was becoming accustomed to increasingly marvelous technical developments and feats of engineering, the Indo-European Telegraph Line stood out for its sheer scope and achievement. It was also the greatest early triumph of Siemens & Halske, magnificent proof of the growing empire of Werner von Siemens that was slowly reaching toward Canada.

The next chapter in the story of Siemens Canada does not lie in the east with India, however, but to the west, through London, the greatest city in Europe, and the inventions of Werner’s tirelessly brilliant brother, William.
A project as large and complex as the Indo-European Telegraph Line requires a great deal of material and labour, enough to overwhelm the resources and administration of many smaller companies. When those demands are added to the existing business activities of a company the size of Siemens & Halske, the burden becomes almost impossible to manage. The fact that the company was not only able to cope with that strain, but to prosper and excel while doing so, reveals not only the quality of its management, but the ability and skill of its workers.

From its foundation in 1847, Siemens & Halske recognized the importance of treating its workforce well. Werner Siemens firmly believed in cultivating the loyalty of his employees and treating them with respect. Satisfied employees who felt they were valued and needed by their employer, he argued, would be more productive and more likely to stay in their current position. The result was a company that was successful and profitable over the long term.

As a result of this belief, Siemens & Halske was constantly searching for new and innovative ways to improve the lives of its employees. It was one of the first employers to offer social benefits to its workforce, paying into a health insurance and death benefits fund for its engineers since 1849. An inventor’s bonus, created in 1866, gave creative employees joint profits from their inventions as a supplement to their wages, while the company established vocational tools to train its craftsmen. Factory canteens were opened so that workers could enjoy affordable, nutritious food at work, and the working week was shortened to 54 hours (six 9-hour days) two decades before such a change became German law. Finally, on its 25th anniversary in 1872, Siemens & Halske founded its own pension fund to provide benefits for retirees, widows, and orphans of company employees, one of the first of its kind in Germany. The result was a period of employee loyalty and labour peace that lasted throughout the second half of the 19th century, a time when many businesses across Europe were suffering from disruptions due to employee unhappiness.

“The money I earned would burn my hand like a red hot iron if I did not give our faithful assistants their due share.”

-- Werner von Siemens to his brother Carl, June 16, 1868
Writing to his brother Werner from Niagara Falls in 1876, William Siemens could hardly contain his appreciation for what he saw. “Autumn in these parts exceeds my wildest expectations of natural abundance and beauty,” he wrote, “[and] the leaves of the huge forest covering the island banks come out in all colours, from deep cherry red to gold and green.” His appreciation, however, was not reserved just for the natural beauty of Canada; he also saw the falls with the eyes of an inventor. “The power loss exceeds 30 million [horsepower],” he wrote; “All the extracted coal in the world would not suffice to return the water back up! If only humans could bottle up that power!”

“It was up to me now, through hard work, to raise to the utmost the business which already bore my name, and to obtain recognition in the world as a man of science and as a technician.”

— W. von Siemens, Recollections

While Siemens Brothers pursued this risky new industry, William’s eyes had also turned westward, to the abundant resources and growing markets of North America. The mineral deposits throughout Nova Scotia were particularly appealing, and as early as 1867, William had signed agreements with a company in Londonderry that would see his groundbreaking regenerative gas furnace used to produce steel for railways. That is why, when Siemens Brothers embarked on its most ambitious project, the Direct United States Cable, the world’s first entirely submarine telegraph line between Europe and North America, it was more than just another cable line. Carried by William’s innovative cable ship, the CS Faraday, the new cable represented a link between the Siemens empire in Europe and North America, particularly Canada. It was a step toward establishing Siemens in Canada and transforming the “if only” of the new nation into a reality.
GREAT RISKS AND GREATER REWARDS

The sun, it was said in the 19th century, never set on the British Empire. Stretching around the globe, from southern Asia to North America, the British Empire was the largest and wealthiest the world had ever seen.

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Governing such a far-flung collection of colonies, however, had its challenges, despite the vast distances involved. Business and government in London had to be kept informed of what was occurring around the world in a timely fashion. Electrical telegraphy made that possible. The Indo-European Telegraph Line had been the first step in connecting the entire empire by telegraph, but even before it was completed, attention was already turning to North America, which had a few unreliable submarine cables linking it with Europe but required more. There was only one obstacle: 5556 km of the cold, dangerous Atlantic Ocean.

Laying submarine telegraph cable was fraught with peril. While steamships, retro-fitted to carry the cable, used precise soundings of the ocean floor while laying cable, breaks in the line were common and potentially disastrous. Laying submarine telegraph cable was fraught with peril. While steamships, retro-fitted to carry the cable, used precise soundings of the ocean floor while laying cable, breaks in the line were common and potentially disastrous. It was entirely possible for a company to lose hundreds of thousands of dollars of cable in a few moments if the line fell into a chasm. Such a break occurred while Siemens, Halske & Co. of London was laying a line from Spain to Oran in North Africa in 1864. The line broke twice and the ship, completely wrecked, was damaged. The resulting financial cost—£150,000, or roughly half of the capital of Siemens, Halske & Co. of London at the time—was substantial. A cable could occasionally be recovered, but searching for a thin strand of metal and rubber on the ocean floor, 3000 metres below, was far from easy. If the cable were found, it would be as much a product of luck as it would of skill. As a result, cable-laying was a nerve-wracking experience for both the cable ship’s crew and the company’s investors. There was a substantial amount of money to be made from the business, but there was just as much potential for complete and utter financial ruin.

William Siemens readily accepted those risks, but Johann Georg Halske could not. A careful, thorough craftsman, Halske was not an adventurous man. He detested excessive risk, and he was not supportive of any activity that distracted from the core products and services that had made Siemens & Halske successful. What really concerned him, however, was what he called William’s “venturesome spirit,” his willingness to spend money on interests that risked his hard-earned capital. As a result, he watched the company’s increasing involvement in cable-laying with concern. After years of having his objections ignored, however, the financial disaster of the Spain-Oran cable proved to be the final straw, and in 1864, Halske withdrew from the company. Although he agreed to leave a portion of his capital in the company so a lease, Halske would play no further role in the business or technical decisions of the company that he had helped found.

This was a difficult time for Siemens & Halske (which kept the Halske name, despite his departure). Werner Siemens had relied heavily on his partner and considered him to be a very close friend. The changes in Berlin, however, required the company to restructure its ownership arrangement, and after considerable lobbying by William, a new British company was created: Siemens Brothers Ltd. Entirely independent, this new business allowed William to continue the cable-laying activities that had upset Halske (and which were starting to make even Werner uncomfortable). It also gave him the freedom to pursue other business activities, projects that ultimately led to the first contact between Siemens and Canada.

While telegraphy made a number of technological leaps during the first half of the 19th century, the science of submarine cables—and how to link them along the ocean floor—improved more slowly. Insulation, which was crucial to protecting the cable and its ability to conduct electricity, was poorly understood at the time, and the ocean was home to a variety of threats to a cable. From unseen chasms and submarine vents that would capsize and break a telegraph line, to hungry worms that would bore into its tarry coating and leave its copper core exposed. In fact, it has been estimated that of the 21,046 km of cable laid by 1861, only 5556 km were actually working properly.

Despite this, submarine cables were still in demand, particularly to link North America and Europe. Siemens & Halske was a leader in manufacturing submarine cables, producing line in its typical careful, meticulous way, with each new cable being given a number of scientific tests to ensure its conductivity and quality. Both Siemens & Halske and Siemens Brothers were also constantly devising new, more efficient cables that were durable enough to withstand the stress of both cable-laying and life on the ocean floor. Before long, Siemens submarine cables were known as the best in the world.

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CONFEDERATION AND THE FIRST CANADIAN CONTRACT

While his company was pursuing contracts for submarine cables—a business he enjoyed and supported wholeheartedly—William Siemens pursued his other passion: science.

He was constantly at work on new inventions, the most important of which was the regenerative furnace he had invented shortly after moving to London from Germany. In 1857, after years of work, his furnace was finally complete, but it was only in 1865, when a French engineer, P. É. Martin, took it out on licence for use from William, that the furnace was put to the use for which it would become famous: producing steel. This process immediately made the highly efficient regenerative furnace an appealing option to existing open-hearth methods of steel production, which were in increasing demand from all areas of industry.

In 1867, William built a small steelmaking factory, the Siemens Sample Works, in Birmingham, England to produce steel using the Siemens-Martin method. Even before the success of that factory and another he started the following year, Livesey, chairman of the Londonderry Iron Company in Nova Scotia, operating at the Acadia Mines, which worked a sizable iron deposit in the Cobequid Mountains near Truro, the first Canadian contract for steel was put out from here.

Londonderry Iron Company wanted ore from the mines to produce bar and pig iron, some of which had even been used in the Siemens Sample Works. Hoping to expand the operations of his company into the production of steel, Livesey expressed interest in William’s new furnace, and the two men (who had been corresponding since at least 1857) began discussing an agreement that would allow the Londonderry Iron Company to use William’s patent in Canada.

Fittingly, negotiations were completed in 1867, less than two months before the Confederation of Canada. This agreement, which gave Livesey the “information plans for the erection of... Patent Regenerative Gas Furnaces in the British Possession of North America” is the very first business involving any branch of the House of Siemens and Canada. Although Livesey was unable to build the planned steel mill, his agreement with William clearly shows that the resources and potential of what was to become Canada were very much on the mind of William Siemens. After his successful negotiation, therefore, it was only a matter of time before larger, more lucrative plans were carried out. Ultimately, however, it was not to be steel that brought Siemens to Canada, but copper, the combative heart of submarine cables, the business that created the first lasting contact between the famous company and the growing nation.

THE REGENERATIVE FURNACE AND STEEL PRODUCTION

As the Industrial Revolution progressed, steel was increasingly in demand. Industries such as railway— which were saturating their older iron rail over to newer steel versions—and the manufacturers of consumer goods both required the material. Steel, however, was still largely produced using highly inefficient open-hearth furnaces that allowed the majority of the heat generated to escape. As a result, steel production remained slow and relatively expensive.

The Siemens Regenerative Furnace changed that. A refined version of existing open-hearth furnaces, the regenerative furnace captured exhaust gas and used it to preheat a chamber filled with bricks. The flow of the furnace was then reversed, forcing fuel and air to pass through the preheated chamber, heating the bricks and allowing the furnace to not only reach higher temperatures than standard open-hearth furnaces, but to be also 70 to 80 per cent more efficient. Using the Siemens-Martin process, this furnace could be used to produce large quantities of “Siemens” grade steel (as the steel produced by this method would be called) with relative ease. Although slower than the other popular method of producing steel, the Bessemer Process, which debuted at roughly the same time, the Siemens-Martin process provided greater control over the steelmaking process and allowed scrap steel to be recycled, lowering production costs even more.

Cross-section of a Siemens continuous tank gas furnace (date unknown)

Siemens-Cornelius Van Horne, a pioneering Canadian railway executive, Siemens Brothers had already hired Van Horne, and in 1894 company reports state that “Mr. Van Horne... is interested in our company and [the] opportunity and potential are of such importance that we shall move more and more to better look over Canada from base.”
The project was an enormous undertaking, equally as complex and ambitious as the Indian-European Telegraph Line six years earlier. Siemens Brothers would not only manufacture the 5667 km of armoured submarine cable needed for the line, but it would lay the entire cable on its own. The cable would have to be durable enough to last for years and yet still conductive enough to transmit signals without the benefit of relay stations like those used on an overhead line. Finally, the cable-laying ship would require a ship that could not only carry more than 4800 km of cable (the famously dangerous North Atlantic was too big to be laid in one attempt), but that could also lay it with perfect precision while being tossed by the waves. It was a daunting task.

William Siemens was up to the challenge. His submarine cable, which he refined for the project, used thicker, more conductive copper than previous cables. As a result, it was roughly 10 per cent more efficient than existing cable, and its outside, which was clad in hemp and iron, made it incredibly durable and far more likely to resist the attacks of sea life or the hidden hazards of the ocean floor. It was his transatlantic cable, however, that proved the most revolutionary part of the Direct United States Cable. Normally, cable ships were simply steamships that had been converted by their owners to cable-laying, no one considered fielding a specially designed cable ship. Instead, cable was laid using converted passenger liners or steamships, which often encountered mechanical difficulties. The Great Eastern, a former passenger ship used by the Anglo-American Telegraph Company, was notorious for her mechanical difficulties, and La Plata, a Siemens Brothers vessel, was unable to balance the loaded cable in a storm and sank with 75 hands aboard. The telegraph ships, however, simply could not lay the cable with the precision that was required.

All of that changed with the launch of the CS Faraday, the second ship in the world to be designed from the ground up to lay cable (the first, the CS Pribee, had been built a year earlier). The Faraday, which was the brainchild of the great American physicist and friend of William Siemens, was a specially designed cable ship. Instead of employing the precision that was required.

In 1873, at the suggestion of Carl Siemens, who had joined William in London in 1869, Siemens Brothers decided to lay its own transatlantic cable. Everyone, even the normally im- 

The deck of the CS Faraday

and an identical base and stem, the Faraday could be carefully positioned for the precise placement of any cable. Special sheaves around the base and stem prevented the cable from bending along the hull as it spooled out, no matter how the Faraday turned or twisted. Even her boilers were specially designed, placed side-by-side in order to minimize her roll in heavy sea.

The Faraday was also built to accommodate the special challenges that came with laying any added stress on the line.

While the Faraday is most famous for laying the first direct transatlantic cable, she had a long and active working life. She laid a total of 93,000 km of cable over 50 years, including several transatlantic cables and cables in the Caribbean, South America, and Australia. When she was finally sold in 1924 for scrap, her hull—which had been built to withstand the dangers of cable-laying in the North Atlantic— was so thick that it could not be broken up, so she was put to work as a coal hulk in North Africa. She continued as a naval shore ship in Sierra Leone during the Second World War before being finally broken up for scrap in England in 1950.

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When standing below the falls of Niagara, the first impression of wonderment at the imposing spectacle before my eyes was followed by a desire to appreciate the amount of force thus eternally spent without produc- ing any other results than to raise the temperature of the St. Lawrence a frac- tion of a degree, by the concussion of the water against the rocks upon which it falls. But above all, the panorama of the falls, and how that feeling quickly gave way to something more charac- teristically analytical... when standing below the falls of Niagara, the first impression of wonderment at the imposing spectacle before my eyes was followed by a desire to appreciate the amount of force thus eternally spent without produc- ing any other results than to raise the temperature of the St. Lawrence a frac- tion of a degree, by the concussion of the water against the rocks upon which it falls.

NEW CONTINENT, NEW OPPORTUNITIES

Over the next several years, Siemens Brothers continued to lay cables around the world, including another submarine line between Britain and North America, but the all-important first link between Canada and the House of Siemens had already been forged. Soon both Siemens & Halske and Siemens Brothers moved to take advantage of this emerging market, which promised new customers and incredible resources.

Initially, Canada’s most prominent attraction was its natural resources. William, from his correspondence with John Lyswy and the London & Lumley Iron Company, was well aware of this. In fact, since 1873, William had been a director of the Steel Company of Canada, a company that used iron ore mined in Nova Scotia to produce high-grade steel for the growing railway industry. Canada offered more than simply ore, however, and in 1876, William paid one and only visit to Canada with his wife, Helen, in person. There, William visited Londonderry, Nova Scotia (the site of a Steel Company of Canada mill that used William’s Siemens-Martin process), and Montreal (where he and his wife had their photo taken by a local photographer).

It was his visit to Niagara Falls, however, that appears to have captured William’s imagination the most. In a paper delivered to the Iron and Steel Institute, William describes his sense of awe at seeing the falls, and how that feeling quickly gave way to something more analytically and scientifically charac- teristically analytical... when standing below the falls of Niagara, the first impression of wonderment at the imposing spectacle before my eyes was followed by a desire to appreciate the amount of force thus eternally spent without produc- ing any other results than to raise the temperature of the St. Lawrence a frac- tion of a degree, by the concussion of the water against the rocks upon which it falls. But above all, the panorama of the falls, and how that feeling quickly gave way to something more charac- teristically analytical...

Ironically, the first physical contact in what would become a long relationship... when standing below the falls of Niagara, the first impression of wonderment at the imposing spectacle before my eyes was followed by a desire to appreciate the amount of force thus eternally spent without produc- ing any other results than to raise the temperature of the St. Lawrence a frac- tion of a degree, by the concussion of the water against the rocks upon which it falls. But above all, the panorama of the falls, and how that feeling quickly gave way to something more charac- teristically analytical...

Alexander Siemens

A third cousin of William and Werner von Siemens, Alexander Siemens was born in 1841. Following his education as an engineer at Hanover, Alexander went to England in 1862 to gain practical experience while working with his cousin. During this time, he travelled extensively throughout Europe and the Middle East while assisting with the construction of the Indian European Telegraph Line. Later, following the Franco- Prussian War in 1870, Alexander helped his cousin construct the regenerative gas furnaces that used the Siemens-Martin method throughout England.

As part of the crew of the CS Faraday during her work laying the first transatlantic cable in 1875, Alexander travelled to North America. While there, he crossed the continent building Siemens-Martin furnaces, and evidence suggests he played an important role in establishing the state-of-the-art furnaces used by the Steel Company of Canada at Londonderry in Nova Scotia.

Named a director of Siemens Brothers in 1880, Alexander remained very active in both telegraphy and electrical engineering in the United Kingdom and North America. Although neither Siemens Brothers nor Siemens & Halske participated in laying the cable, his address proved to be a crucial factor in the decision to lay a transatlantic cable, and an essay he wrote on the subject was used by Sir Sandford Fleming to promote the project to the Parliament of Canada. Alexander also oversaw the laying of a telegraph cable up the Amazon River in 1896.

In 1889, Alexander was made the managing director of Siemens Brothers, a position he held until his retirement a decade later. He was also president of the American Institute of Electrical Engineers, president of the Institution of Civil Engineers, and a British delegate to the International Electrical Congress that occurred just before the Chicago World’s Fair in 1893. A naturalized British subject, he died in 1928.
In 1849, the Acadian Iron Mines opened at Londonderry, Nova Scotia. Working what was then the richest reserve of iron ore deposits discovered in North America, the Acadia Mines (as they became known) supplied hydrated iron oxide to a local ironworks, which produced bar and pig iron for steel mills across North America and Britain. By 1870, steel was increasingly in demand for everything from cutlery to railway equipment, and a small steel mill was constructed at Londonderry to use the locally produced pig iron. While the operation was small, the rich iron deposits in the area soon attracted even more attention and in 1873, both the ironworks and the steel mill were purchased by the Steel Company of Canada, a consortium of English and Canadian business (and of no relation to the Siemens family). Headed by Hugh Allan, Canada’s richest man, the company began to modernize the steel mill in order to produce higher grade steel, likely for use as rail in Allan’s Canadian Pacific Railway (CPR). While Allan’s dream of building the first national railway ended in the Pacific Scandal, when Prime Minister John A. Macdonald was forced to resign for accepting bribes from Allan, the Steel Company of Canada continued to modernize the Londonderry mill.

One of Allan’s fellow investors in the Steel Company of Canada was William Siemens. Named a director in 1873 (he would become chairman of the company in 1877), Siemens was particularly important for more than his financial contribution: his regenerative furnace was the heart of the new plant. Using the Siemens-Martin process, the new mill was able to produce the “Siemens” grade steel, which was in great demand across North America and Britain.

As a result of its new furnace, Londonderry grew rapidly. In 1875, the Steel Company of Canada built a huge industrial complex containing blast furnaces, stoves, engine-houses, offices, warehouses, and all the infrastructure that a company town required. Installation of the new furnaces was overseen by Alexander Siemens, William’s cousin and a crewman on the original Faraday voyage. Londonderry’s population quickly swelled to nearly 5000 people, including hundreds of miners from the United Kingdom who were brought to the mines to help exploit the rich veins of iron ore.

In recognition of the progress and the importance of William’s furnace to the entire area, the community was officially renamed “Siemens” in 1877 by the government of Nova Scotia, although the name does not seem to have been widely adopted. In 1903, the town name reverted once again to Londonderry.

Despite this brief period of prosperity, however, the industrial operations at the steel mill were not going well. A combination of poor site management, technical problems, and the discovery of more lucrative iron reserves in northern Ontario eventually doomed Siemens, Nova Scotia. The Steel Company of Canada ceased business in 1887 after having passed control of the mill to its subsidiary, the Londonderry Iron and Steel Company Ltd., and by the time a major fire destroyed the foundry and surrounding mills in 1900, steel production had stopped. Iron production continued, but once the remaining stock of iron was exhausted in 1908, nothing more was smelted. The entire complex began its slow slide into oblivion and following yet another fire in 1920, the remaining components eventually were sold for scrap. All that remains of Siemens, Nova Scotia, today are several ruined coke ovens and a legacy of its brief, but spectacular, success.
The falls, William estimated in his paper, could produce nearly 17 million horsepower (or the equivalent of 241 million tonnes of coal) per year. While he was able to test some of these theories during construction of the world’s first hydroelectric-powered railway, the Giant’s Causeway Tramway in Ireland, William died before he could create an even larger project at Niagara Falls. His ideas, however, were the inspiration for subsequent attempts to harness and transmit the power of the falls. after 1895, when Westinghouse and the Siemens company, Nikola Tesla, built the Ames Hydroelectric Generating Plant using Tesla’s theories on alternating current power transmission.

In fact, William’s interest in Niagara Falls reflected many of the early dealings that Siemens had with the Yankees. While he was somewhat prejudiced against the Yankees, he was willing to overlook this for the potential of his invention. One project, however, the project was never pursued, and other projects, such as the Pacific Railway, which experienced similar promising starts, also failed. Canada was used as the culprit, while politicians and industry alike appreciated and respected the expertise of the Siemens companies, the vast size of the new country made it difficult for either company to secure any work. They were simply too far away from their factories in London and Berlin, preventing them from providing materials or service in Canada as a competitive price. As a result, although they established agencies in Montreal and Toronto for the sale of smaller items, neither Siemens & Halske nor Siemens Brothers nor Siemens & Halske managed to secure any large projects despite all of their effort.

While it was electrical telegraphy that had made the Siemens & Halske name and brought the company to the Dominion, it was an entirely different field that proved the most popular in Canada: electrical power engineering.

Despite his responsibilities running a large, successful company, Werner Siemens had always found time to continue his experiments in all aspects of electricity and its generation. In particular, he was interested in developments that would either allow him to improve an existing invention or provide a product to fill a hole in the market. In 1866, he made what was arguably his most significant discovery, one that would be the basis not only of much of Siemens & Halske’s work for the remainder of his life, but the business undertaken by branches of Siemens around the world for decades after. Working with the theories of Michael Faraday, a British physicist, Werner discovered what he would call “the electrodynamic principle” (now called the dynamos-electric principle) that demonstrated how mechanical energy could be converted efficiently to electrical energy. Dynamos, a kind of early electric generator, could produce electricity from cheap, readily available usable energy sources; when the dynamo was powered, it would move, and its mechanical energy would be transformed into electrical energy in an economical manner.

While this discovery promised to generate electric power in a cost-effective way, it could do so on a scale that was far larger than anyone could have imagined. Werner immediately recognized the potential of his invention, telling his brother William in 1866 that the dynamo would be “the pivot of a great technical revolution, which will raise electricity to a new place in the scale of elementary forces...” Moving quickly, he patented the discovery in 1867, even though other inventors were working on the same problem at the same time. In the years that followed, Siemens worked to perfect his “dynamo-electric machine,” increasing both its output and capacity, until the late 1870s, when a much-improved dynamo was ready for use in both private and industrial applications.
What followed proved the accuracy of Werner’s prediction of “a great technical revolution.” Power engineering began to expand at an incredible rate, with dynamos being used to provide lighting, power electric railways, and drive electric motors for industry. Everyone, from individual business owners in need of an affordable power source to small cities in need of lighting or public transportation, benefited from the release of the dynamo, and successive versions of the machine grew in power and improved in efficiency. In fact, dynamos became so important to the activities of Siemens & Halske that an entirely new branch of the company, Siemens Brothers Dynamo Works Ltd., was opened in the United Kingdom in 1906 simply to manufacture and sell power engineering solutions.

Dynamos proved as popular in Canada as they were in Europe, as industry and cities sought to build up infrastructure in the young country. The North American supply of dynamos improved dramatically when the Siemens & Halske Company of America Ltd. was founded in Chicago in 1891, which put an end to Siemens & Halske Company of America Ltd.’s earlier local problems. Although Canadian duties on imports from the United States at that time were often imposing, companies across Canada, from the east coast to as far west as Greenwood, British Columbia, contracted Siemens & Halske Company of America to manufacture and install dynamos and lighting systems for their factories, lumber camps, and smelters.

Dynamo sales became so important that in 1904, the Siemens & Halske Company of America lost an order of dynamos for its power house. Although Siemens & Halske Company of America Ltd. was founded in Chicago in 1891, this one was in British Columbia. Although Canadian duties on imports from the United States at that time were often imposing, companies across Canada, from the east coast to as far west as Greenwood, British Columbia, contracted Siemens & Halske Company of America to manufacture and install dynamos and lighting systems for their factories, lumber camps, and smelters.

That success received a setback in 1894, however, when a new industrial complex being built by the Siemens & Halske Company of America was destroyed by fire. The loss had a significant effect on the young Toronto Railway Company, which lost an order of dynamos for its power house. Although Siemens & Halske Company of America appears to have continued to produce equipment on a limited basis, it never recovered and gradually ceased operation in 1904.

Despite this success, sales of electrical trains and streetcars throughout the 1890s were exceptionally poor; it has been estimated that no more than three electric streetcars were built and used to transport passengers during that decade. The primary obstacle with the technology was what gave it so much potential: the power supply. It was simply unclear how current could be delivered safely and efficiently to the train or tram. In 1898, however, that problem was solved by a Siemens engineer, and trains and railways became more common, despite their relatively high price. In 1896, the first continental European subway was constructed in Budapest, and electric railways began to grow in popularity and affordability. Only seven years later, a Siemens electric train reached speeds of 210 km per hour on a real track outside Berlin, a world record that stood for nearly 30 years.

While still young, Canada was growing rapidly and its cities, like their European cousins, needed effective transit systems for their growth. Nowhere was the need more pressing than in Toronto, and in 1887, the Toronto Railway Company (TRC) was established to provide horseless streetcar service to the downtown area. Formed by James Ross and William MacKenzie after the two men received a 30-year franchise to moderate the existing horse-drawn car service, the TRC’s first streetcar in 1889 was a horse-drawn vehicle.

One of the main reasons for the development of electric railways in the 1890s was the need to solve the problem of delivering current from the power supply to the tram or train. In 1889, however, that problem was solved by a Siemens engineer, and trains and railways became more common, despite their relatively high price. In 1896, the first continental European subway was constructed in Budapest, and electric railways began to grow in popularity and affordability. Only seven years later, a Siemens electric train reached speeds of 210 km per hour on a real track outside Berlin, a world record that stood for nearly 30 years.

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The dynamo invented by Werner von Siemens proved a solution to that problem, and at the Berlin Trade Fair in 1879, Siemens & Halske debuted the world’s first electric railway. Built on the fairgrounds, the railway ran for 300 metres in a circle, hauling up to 18 passengers on three carriages behind a three-horsepower locomotive. While the only reached speeds of 7 km per hour, the train was a crowd favourite with an estimated 90,000 passengers. The train later appeared at subsequent exhibitions in Brussels, London, Copenhagen, and Moscow.

The first electric, the “Electra,” constructed by Werner von Siemens in Berlin, 1892

The so-called electric carriages of the Siemens & Halske Company of America were the product of a partnership between the Siemens & Halske Company of America Ltd. and the Siemens & Halske Company of America Ltd. The former was established to provide horseless streetcar service to the downtown area, while the latter was formed to provide electrical equipment to the railway industry. The partnership was dissolved in 1894, after which Siemens & Halske Company of America Ltd. continued to manufacture electric railway equipment on its own.

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The first electric railway in the Berlin Trade Fair, 1879

Toronto Railway Company powerhouse on the southeast corner of Front Street and University Street, circa 1871. Originally built in 1888 as a horse stable, the building housed a number of steam dynamo rooms over the years, including at least one Siemens machine. (City of Toronto Archives, Fonds 16, Series 559, Item 535)
From humble beginnings in a small Berlin workshop, Siemens & Halske had risen to prominence in Europe through hard work, skill, and innovation. Following the deaths of Werner von Siemens and Sir William Siemens, however, the company began to broaden its horizons and look beyond Europe to new markets and new opportunities. North America, with abundant natural resources and great potential, was an obvious destination for Siemens & Halske. Agents had not secured the amount of business that the company had desired, and with the failure of the Siemens & Halske Company of America, Siemens & Halske lacked a solid presence in North America. It needed a new company on that continent to ensure that it could participate in this lucrative market.

When that new company finally did come in 1909, it was formed not in the United States, but in Canada. For the next three decades, Siemens brought Canadian industries and cities its characteristic innovative products and dedication to service. The task was not easy; from its offices in Toronto, and later, Montreal, the new company struggled against strong competition, inefficient logistics, and the vast size of Canada itself. At times, it seemed as if everything was conspiring against the company, particularly when war broke out in 1914, forcing the closure of the Montreal business. Throughout it all, Siemens persevered, returning first to Winnipeg, where it offered radio and telephone equipment, and then to Montreal, where Siemens-Reiniger Canada provided hospitals with the latest in innovative medical products. Even in the depths of the Great Depression, the companies continued to work, slowly establishing the roots of what would eventually become the basis of Siemens Canada: skilled employees, innovative products, and a strong dedication to its customers.

“Telegraphy will become an important branch of technology in its own right and I feel the call to become further involved in its organization since I am convinced that it is still in its early stages.”


Inside the Siemens-Schuckertwerke Dynamowerk, 1913. The majority of the generators sold in Canada by Siemens Dynamo Works (Canada) and the Siemens Company of Canada would have been manufactured in this Berlin factory prior to being shipped to Canada.

Development and Dynamos: The Establishment of Siemens Canada
A FRESH START IN CANADA

In 1909, Siemens & Halske had a problem. North America was booming, and the demand for generators, switchboards, meters, and other electrical equipment seemed to be growing daily.

New projects were being undertaken, but apart from several agents in Montreal, Toronto, and New York, Siemens & Halske had no presence in the continent. There was no way that a customer could purchase the company’s products or services. It needed a permanent office in North America, a representative of the company that could not only sell customers supplies, but that could also bid on the projects that were springing up across Canada and the United States.

Ultimately, that new company was based in Canada. Siemens & Halske had links to the United States, but the two between Canada and Siemens Brothers were stronger; not only was Can-ada part of the British Empire, a fact that Siemens Brothers—a British company—could see to its advantage when it came to importing items, but the company considered Canada to show great potential. Recognizing what the board of Siemens Brothers in London called ‘favourable reports...coming out from Montreal, Toronto, and New York,’ the company decided to establish an office in Canada to carry the Siemens name. It was also a distinctly Canadian business, since Siemens Brothers Dynamo Works (Canada) had established itself in the booming Ontario hydroelectricity sector, the plan was to expand the business to every region of the country, allowing it to grow with the still-developing country.

Operating out of a small office first at 154 Bay Street in Toronto, and later in the historic Bell Telephone Building on Adelaide Street East, this Canadian branch of Siemens Brothers Dynamo Works Ltd. quickly began to secure contracts and tenders on projects across the country. Sales were initially low. While the company did succeed in becoming involved in projects for the Hydro-Electric Power Commission of Ontario from the outset of its operations (an association that would last, despite numerous ups and downs, for a number of years), Siemens Brothers Dynamo Works (Canada) repeatedly encountered difficulties establishing itself in the fiercely competitive Canadian market. Some competitors, such as Arthur S. Herbert, the first manager of the new enterprise, recounts in an early report, did their best to sabotage the new company, frequently telling potential clients that Siemens Brothers Dynamo Works (Canada) was “only a small firm who primarily deal in instruments and therefore [are] not to be considered for power work.” That misinformation helped to build a lingering suspicion that, despite its capable parent company, the new Siemens Brothers Dynamo Works (Canada) was simply unable to handle the sort of demanding projects that were becoming more common in Canada.

Some potential clients, however, were selling to give the new business a chance, and Siemens Brothers Dynamo Works (Canada) did secure a number of important contracts in its first year. In 1910, it bid on the construction and outfitting of a power substation for a plant at Port Arthur (part of what is now Thunder Bay, Ontario), and while the company lost the initial bid, it was hired to provide additional material for the project. That contract was amended and expanded over a number of years. Other, smaller orders for motors, lamps, and meters were also filled for a variety of factories across Ontario, Quebec, and the Maritimes.

The decision was made to establish an office in Toronto, and in December 1909, Siemens Brothers Dynamo Works (Canada) Ltd. received a licence to operate in Toronto. Although the new company was required to submit monthly reports to London and order its supplies from factories in Germany and the United Kingdom, it was the first company in Canada to carry the Siemens name. It was also a distinctly Canadian business, since Siemens Brothers Dynamo Works (Canada) had established itself in the booming Ontario hydroelectricity sector, the plan was to expand the business to every region of the country, allowing it to grow with the still-developing country. The new company was “only a small firm who primarily deal in instruments and therefore [are] not to be considered for power work.” That misinformation helped to build a lingering suspicion that, despite its capable parent company, the new Siemens Brothers Dynamo Works (Canada) was simply unable to handle the sort of demanding projects that were becoming more common in Canada.

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Steven Schuckert, 1844

Siemens-Schuckertwerke

By the end of the 1890s in Germany, the electrical engineering market was filled with companies offering similar products and services. Many of these businesses, however, focused only on one time projects, and they could not maintain a steady flow of work once the initial project was complete. Faced with heavy competition and an economic downturn between 1907 and 1908, many of these businesses were forced to close, while the others were acquired by more stable companies such as Siemens & Halske and Canada. One company that ran into financial difficulty in 1902 was Elektro-technische Aktiengesellschaft, or Siemens & Halske. Formed in 1873 in Nuremberg by W. Siemens, Schuckert, and Company, in order to deny its competitor the acquisition.

The result was Siemens-Schuckertwerke, and the double “S” logo of the new company would become a familiar sight on quality electrical equipment around the world.

Just months before Siemens Canada was chartered, the R.S. Titmus, the largest ship chartered, the RMS Titanic, had sunk in the North Atlantic, destined for a new start in the United States and Canada.

The ship was built using Siemens-Martin formula steel plate throughout the shell to ensure high quality and elasticity, and had been responsible for constructing the world’s first power station, a complex with 24 steam-driven electric generators located in the Bavarian town of Etal. When Schuckert & Co. began to fall and draw the attention of AEG, Siemens & Halske quickly merged its power engineering activities with Schuckert in order to deny its competitor the acquisition. The result was Siemens-Schuckertwerke, and the double “S” logo from Siemens-Schuckertwerke from the 1930s. 

Siemens-Schuckertwerke 

The effective double “S” logo of Siemens-Schuckertwerke from the 1930s.

Siemens-Schuckertwerke 

The Schuckert & Co. plants in Nuremberg, 1909

Siemens-Schuckertwerke
Siemens Brothers Dynamo Works (Canada) frequently un-
able to deliver a product on time or at a competitive price.
In fact, it could take the company as much as three or
four years after the products were needed. Depending on the
items, the London office of Siemens Brothers Dynamo Works Ltd. would then have to
tax the information on to the Siemens-Schuckertwerke in
Germany, which would supply London with a price and es-
timated delivery date. That information was then sent from
Germany to a remarkable city of Mouse Jaw (even though its price was lower than that of the
competition) and that added the 8000 km between Mouse Jaw and Germany to the mix. The next month, the amount was low-
er—only $25,000 lost, by Herbert’s estimate—but the man-
ager, clearly tired of explaining the situation in his reports,
explains that he considers it “hardly necessary to state the
details, as I have written so much about delivery lately.”

It is worth noting that, for their part, both Siemens Brothers
Dynamo Works in London and Siemens-Schuckertwerke in
Germany were doing their best to meet the deadlines they
were given, but if the distance in Canada was a formidable
obstacle, the added 10,000 km between Munich and London
made what was already difficult almost entirely impossible.

The Dynamics Works office in London would often feel the
pressure of a tight deadline and often vague instructions from the
client. At one point, in response to threats of legal action from the Hydro-Electric
Power Commission, the London office even threatened to charge its sister organization in
England if a valuable contract at Port Arthur was lost due to late delivery. While the con-
tact was ultimately retained, the relationship between the Siemens branch in
Canada and the parent company in Germany was again strained.

Not only did the sheer size of Canada continue to pose a
challenge for the company’s supply chain, but the customer’s
timeliness became even more critical as new items were
assembled here. Not long after Canada’s size was
noted, it became apparent that the company was dogged by logistical problems.

Despite this initial success, sales remained slow—a mere $60,000 for
all of 1910—and the company was dogged by logistical problems.

A Winnipeg office was opened in 1911 to help alleviate some of
the problems posed by Canada’s size, but nothing could be
done about the company’s long supply chain. Ultimately, this
problem led to lost opportunities that were costly. The company’s manager, Herbert, estimates that the
company lost upwards of $60,000 in contracts for the month of April
1912 alone, including a $20,000 turbo-generating set for the city of Moose Jaw (even though its price was lower than that of the competition) and a $20,000 waterwheel generator for
tenure the company was not based in Ontario, but in Montreal.

The company was the financial centre of the country, and the Montreal Stock Exchange more
than doubled that of the Toronto Stock Exchange. Establish-
ing the Siemens Company of Canada in the nation’s financial
heart was effectively an announcement that this new bus-
ness was going to be a national enterprise.

Large marble Alt in the Department of Electrical Engineering in Berlin-Siemensstadt, 1910. Large generators,
in Berlin-Siemensstadt, Siemens-Schuckertwerke
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Siemens Brothers, the U.K.-based branch of Siemens & Halske, had managed to regain much of its market following the end of the war, largely due to the growing popularity of consumer items. Irons, vacuums, stoves, and hair dryers, all marketed under the “Protos” name in the United Kingdom, were proving increasingly desirable, especially as economies in North America and Europe expanded rapidly following the war. While few Protos items ever made their way to the Canadian market, which was already dominated by manufacturers such as Westinghouse and General Electric, one notable item did arrive in Canada: the telephone. Central and Eastern Canada were already controlled by Bell Canada, but the continued expansion westward had opened up new markets for telephones and telephone switching equipment. It was an excellent opportunity for Siemens to return to Canada.

Winnipeg was the key to this new venture. No stranger to Siemens communications equipment, Winnipeg was now a large city with a population of more than 300,000, and its use of telephones was increasing rapidly. This expansion—the city had 8500 phones in 1904 and more than 74,000 nearly 30 years later—was an excellent opportunity for Siemens to return to Canada.

Siemens and the First World War

The era following the end of the First World War was not an easy one for Siemens Brothers. London-based Siemens & Halske had managed to regain much of its market following the end of the war, largely due to the growing popularity of consumer items. Irons, vacuums, stoves, and hair dryers, all marketed under the “Protos” name in the United Kingdom, were proving increasingly desirable, especially as economies in North America and Europe expanded rapidly following the war. While few Protos items ever made their way to the Canadian market, which was already dominated by manufacturers such as Westinghouse and General Electric, one notable item did arrive in Canada: the telephone. Central and Eastern Canada were already controlled by Bell Canada, but the continued expansion westward had opened up new markets for telephones and telephone switching equipment. It was an excellent opportunity for Siemens to return to Canada.

The Winnipeg Police Signal System

After several years of debates, Winnipeg began an ambitious project to install a police signal system throughout the city in 1911. It was a significant undertaking: the system of “call boxes,” as the distinctive blue boxes were called, was unlike anything previously attempted in North America. Signal systems had been installed elsewhere in North America, but they were limited to allowing a constable to contact the station. The system proposed for Winnipeg, however, was designed for two-way communication, allowing the station to contact a specific call box at any time. It was a significant difference and one that made for a far more complex project.

The call boxes, 158 in total, were provided by the Siemens Company of Canada for $52,700. Each box was fitted with a bell to attract a constable in the day, and a red light to get his attention at night (although the use of bells was discontinued due to complaints by citizens). The entire system was connected to a switchboard at the central police station via a staggering amount of cable and wire: 43,196 metres of underground cable, 23,869 metres of overhead cable, and 109 km of overhead wire.

After two years of planning and work, the Signal System—which had cost a total of more than $132,000—went into service on November 5, 1913. It handled an enormous amount of use, accommodating between 400,000 and 450,000 calls per year. In fact, it proved so successful that other communities soon adopted similar designs for their own police departments.

The Winnipeg Police Signal System remained in service for nearly 60 years, until beat constables were phased out or started carrying hand-held radios in the early 1970s.

THE WINNIPEG POLICE SIGNAL SYSTEM

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The Winnipeg Police Signal System remained in service for nearly 60 years, until beat constables were phased out or started carrying hand-held radios in the early 1970s.
years later—made the city’s existing manual phone exchanges (where operators physically connected each call) obsolete. This forced the city to embark on the costly task of upgrading its exchanges with automatic switching equipment. Siemens Brothers, which had supplied similar equipment to St. John’s, Newfoundland, several years earlier, supplied Winnipeg with the equipment for a 6000 line exchange in 1923. An order followed later that year. Those sales were encouraging enough to the U.K. company that it decided to create a Winnipeg office, and on June 10, 1924, two years after the closure of the Siemens Company of Canada, Siemens Brothers (Canada) Ltd. was formed. Located in the same building as the Winnipeg office of the Siemens Company of Canada years before, Siemens Brothers (Canada) focused exclusively on selling telephones, switching equipment, and radios to Western Canada. Winnipeg, however, remained its main market, and in 1932, the company was contracted to supply the Manitoba Telephone System with switching equipment for a new automatic exchange on Portage Avenue. Built specifically to house switching equipment and the offices of the telephone company, the new exchange was designed to accommodate an impressive 30,000 telephone lines, and its entire second floor (more than 1100 square metres) was filled with racks of switching equipment. Siemens not only provided the switching equipment—31 racks that each stood nearly 3.6 metres high—but an alarm system and the power generation, including back-up batteries, needed to run all of it. The result, according to a Siemens Brothers report on the project, was a “complete satisfaction to all concerned.” While Siemens Brothers (Canada) built other automatic exchanges across Western Canada, it also extensively marketed its consumer products, particularly wireless radio. During the 1920s, Siemens Brothers (Canada) placed advertisements in newspapers from Winnipeg to Victoria advertising not only its wireless sets, but also its batteries, receivers, and headphone. As the Depression began to take its toll, particularly through the Prairie provinces, the construction of telephone exchanges slowed and sales of luxury items dried up. Advertisements for Siemens Brothers (Canada) gradually began to disappear from newspapers and the company was relatively quiet for a while. The evolution of Siemens standing telephones, culminating with the Neophone (front right). Left: This advertisement for loud speakers appeared in the November 14, 1924, edition of the Winnipeg Evening Tribune. Centre: Siemens Brothers (Canada) Limited advertisement from the 1930s. Right: Logo for Siemens Type 300 Neophone rotary phone. The 1920s had been a very successful decade for Canada: living standards had improved dramatically and many Canadians had regular employment. Following the stock market crash in 1929, however, many businesses closed and by 1933, nearly one-third of the Canadian workforce was unemployed. Rural areas, especially the Prairie provinces, were even worse, as falling wheat prices and the dust bowl conditions (caused by years of drought and topsoil erosion) forced many to flee to cities. In time, a series of large infrastructure projects would lower unemployment rates and stabilize the economy, but not before Canadian industrial production fell nearly 60 per cent to the second-worst in the world, behind only the United States.
People would frequently gather around wireless sets like this one to listen to the news, entertainment specials, or music. This photo is from a 1925 Siemens & Halske advertisement.

Left: First German telephone exchange in Berlin. Manually operated, the exchange was installed by Siemens & Halske in 1881.
Right: Advertisement for Siemens-Halske standing telephone, circa 1896

Below: Manual telephone exchange in Berlin, 1906. As more people began to use the telephone and additional lines were added, exchanges like this one were replaced with more efficient automatic exchanges.
Below: Europe’s first major urban automatic telephone exchange, installed in the Schwabing district of Munich in 1909. Using two-motion selectors, the exchange had an initial capacity of 2500 subscribers.

In November 1932, Siemens-Reiniger, a subsidiary of Siemens & Halske that manufactured medical equipment such as X-ray machines, opened an office in Montreal. Under the management of its German president, Kurt Gresser, Siemens-Reiniger Canada operated out of a ground floor office at 18 Dominion Square with a staff of three. Several years later, the company added additional branches in Quebec City and Vancouver.

Siemens-Reiniger Canada's goal was to supply its high-quality X-ray equipment to North American customers. While the United States wing of Siemens-Reiniger had been unable to sell certain X-ray tubes and products due to patents owned by General Electric, those patents did not cover Canada, and Siemens-Reiniger Canada could offer a complete range of products, giving it a substantial competitive edge. As a result, it received a number of large orders from hospitals through Central and Eastern Canada during its first few years. Montreal was a particularly strong market, and the Hôtel-Dieu Hospital and the Jewish Hospital made large purchases from the company.

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Wilhelm Roentgen and the X-ray

In 1895, while investigating the effects of passing an electrical discharge through a vacuum tube, Wilhelm Roentgen, a German physicist, observed that even though the tube was covered with a black cardboard covering to prevent light from escaping, something was creating a fluorescent effect on a nearby screen that had been painted with barium. Speculating that the effect was caused by a new kind of ray (which he called an “X-ray”), Roentgen continued his research. Two weeks later, he took the world’s very first X-ray, a photo of his wife’s hand, an image that shocked the poor woman so much that she reportedly proclaimed, “I have seen my death!” Within months of his discovery, Siemens & Halske had patented a “new X-ray lamp with regulated vacuum” that allowed a user to regulate the gas pressure in the tube to reduce wear and produce sharper images. Roentgen refused to patent his discovery so that everyone could benefit from it. The company’s goal was to create a machine that would give the “radioscopic screening of complete adult bodies.” While Roentgen, who received the Nobel Prize for his work in 1901, did not participate in this work, Siemens & Halske remained grateful to the scientist throughout his lifetime, contributing to the creation of a bust of Roentgen and, after he lost his hearing, providing him with a custom hearing aid in 1922.

Wilhelm Roentgen

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The use of X-rays for diagnostic purposes has a long history in Canada. In 1896, mere months after Wilhelm Roentgen’s famous discovery, Professor John Cox of McGill University performed the first diagnostic X-ray in Canada when he located a bullet in a patient’s leg. A little more than a decade later, when the president of the Canadian Medical Association, Dr. J. Franklin Kidd, ordered an X-ray machine for his office in downtown Ottawa, X-rays were becoming increasingly more common in Canadian private practice. Those early X-ray machines, however, were small and crude compared to the larger, more sophisticated models produced by Siemens-Reiniger through the 1930s. A variety of X-ray machines of different sizes were manufactured at that time, ranging from the compact “Nanos” to the much larger “Heliospheres” and “Heliodors.”

One of the first diagnostic X-ray units in Canada was the Tuto Heliphos, sold by Siemens-Reiniger Canada in 1933 to the Hôtel-Dieu de Québec, which took a unit as part of its X-ray suite, and Toronto General Hospital, which acquired two of the machines, were sold to the hospital by Siemens-Reiniger Canada in 1933 as a complete X-ray suite.

Despite this competitive advantage and its early success, however, Siemens-Reiniger Canada could not build enough momentum in the nation. Its smaller products, such as the Ultratherm (a shortwave heating apparatus) and the Heliosphere mobile X-ray unit, were popular, but a dispersed economy and the stability to sell larger, more profitable equipment to hospitals with any regularity forced the company to post a loss for each of its first four years. Undaunted, it continued to expand its presence in Canada, opening service centres in Winnipeg and Toronto. It also established an agreement with the Dental Company of Canada in 1936 to offer its products to dentists. Gradually, these changes began to have a noticeable effect, and in 1938, when Otto Raab replaced Kurt Gresser as president, the company had 13 employees and was enjoying increased sales throughout the country.

Once again, it appeared that Siemens had finally established itself in Canada. But just as it had been 24 years earlier, success was short-lived. The world was an uncertain place and ripple effects of that disturbance were beginning to be felt even in Canada. In 1939, war broke out yet again, threatening not only everything Siemens-Reiniger Canada had accomplished, but the very survival of Siemens & Halske itself.
For 30 years following the founding of Siemens Dynamo Works (Canada), Siemens Canada had made slow but steady progress. Canadian governments and businesses were beginning to learn about the new company and what it offered, and while hardships such as the First World War and the Great Depression impeded the growth of the company, Siemens always returned with new, innovative solutions that were needed by customers in the growing country. As Canada emerged from nearly a decade of economic troubles and looked forward to better times, it seemed that Siemens in Canada would follow.

The outbreak of the Second World War destroyed those hopes. As a subsidiary of a German company, Siemens-Reiniger Canada was confiscated by Canadian authorities and its assets set for auction. While the incredible efforts of the company’s president, Otto Raab, saved the company from extinction, the reprieve was temporary; the widespread destruction of Siemens facilities during the war placed the future of the company itself in jeopardy. Otto Raab was forced to take employment with another company and Siemens disappeared from the Canadian landscape for a time.

The story of Siemens Canada was far from over, however. The company launched an immense rebuilding program in Germany and slowly reintroduced itself to former markets. Operating first through agents and then through small subsidiaries like Siemens Halske, Siemens returned to Canada.

As the country awoke from the nightmare of the Second World War, Siemens was there, helping Canadians overcome years of economic collapse and war. Together, Canada and Siemens began to re-establish themselves, leaving the dark years of the war behind, making the long journey that culminated in one of the proudest moments for both the country and the company: Expo 67.

“Many storms have come down upon us, war and economic crises that overwhelmed other companies. Each time, we have come out of them somewhat leaner, but also toughened.”

– Herman von Siemens, celebrating the 100th anniversary of the founding of Siemens & Halske
Chamberland, and unknown secretary, 1960. Left to right: Supplies Co. storefront, when Germany invaded Poland on September 1, 1939, everything

Came to nothing. Instead

Siemens-Reiniger—and the Canadian government. Tens of thousands of dollars would be

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The confiscation and sale of Siemens-Reiniger Canada by the Canadian government during the Second World War did not represent the only Siemens activity in Canada at the time. In 1945, the German submirenter (or U-boat) U-537 was dispatched from Norway on its first transatlantic crossing with a very special cargo: a Siemens-built weather station. What followed was a mystery more than three decades long.

Weather patterns in the Northern Hemisphere move from west to east. It may seem like a simple thing, but during the Second World War, that movement gave the Allies a significant advantage over the Germans. Permanent weather stations across North America, Greenland, and Iceland allowed the Allies to make accurate weather forecasts, while Germany was forced to rely on information gathered by U-boats (which were not always on the surface), weather ships, and some specially equipped aircraft. All of these methods were limited in some way, however, and the Germans needed more reliable methods of acquiring information about the weather. They needed stable weather stations of their own.

Their response to this problem was the Wetterfunkgerät (WFZ) weather station, a highly accurate, unmanned device designed to gather and transmit weather data from hostile territory. Each station contained a variety of instruments, a telemetry system, and a 15-kW transmitter, all housed in 10 cylindrical canisters, each 1.5 metres in diameter and weighing 108 kg. Powered by nickel-cadmium batteries, the WFL 26 (an early version of the WFZ) broadcast weather readings every three hours on a particular frequency for up to six months. In total, 26 WFL weather stations were built by Siemens.

One of these stations, nicknamed “Kurt,” was transported to the coast of Labrador by the U-537. There, at Martin Bay near the northeastern tip of Labrador, the station was installed by the submirenter’s crew. The spot, carefully chosen by the U-537’s captain to maximize the risk of the station being discovered by the local indigenous people, was camouflaged with litter, such as empty packages of American cigarettes and fake markings for a fictitious “Canadian Meteor Service.” Its mission complete, the U-537 then made its escape. Kurt presumably carried out its task, but when its batteries faded, it was no longer of use. The war ended and the weather station was forgotten.

In 1979, a retired Siemens engineer in Germany, Franz Selinger, came across information about the system while writing a history of the company. Selinger contacted Canadian authorities and was invited to come to Canada to help locate and retrieve the station. Onboard the icebreaker COGS Louis St. Laurent, Selinger and Department of National Defence Historian W.A.B. Douglas travelled to Labrador and found the weather station. While its canisters had been opened and its contents spread around by unknown parties, the station was still intact. It was salvaged and returned to Ottawa, where it is now on display at the Canadian War Museum, 69 years after its clandestine arrival in the hold of the U-537.

Selinger stands on the helicopter deck of the Coast Guard icebreaker Louis St. Laurent, northeast of Newfoundland, October 23, 1943.

Franz Selinger.

Rudy Siemensmarter, a factory that produced measuring instruments, was founded in 1911.

The technical team goes ashore for the assembly of WFL 26.

Dr. Mike Gebur and Franz Selinger in Germany, 2011.

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Dr. Mike Gebur and Franz Selinger in Germany, 2011.
What made those switching centres particularly important was the changing nature of how Canadians communicated. Following the war, most Canadians had a telephone at home or other exchanges were remote, allowing a keyboard, and incoming calls were queued according to their order of arrival. Calls that were routed to direct distance dialing in 1951 (where a caller could complete their order of arrival. Calls that were routed to direct distance dialing in 1951 (where a caller could complete a long-distance call without the help of an operator), Canada did not enjoy that feature until, at the earliest, 1958. A more efficient method of connecting and billing long-distance telephone calls. While the United States had access to direct distance dialing that we enjoy today, those systems emerged from its long process of postwar reconstruction, had little say in the continued use of the Siemens name by a competitor. There was little doubt, however, that the German company, always proud and protective of its famous history, disliked seeing the Siemens name attached to products that were not its own. It was predictable, then, that when Siemens & Halske was preparing to return to the Canadian market in the early 1960s, one of its first tasks was to re-gate the use of the Siemens name in Canada with Siemens-Edison-Swan in 1963, a year after the formation of Siemens Halske Siemens-Schuckert (Canada), Siemens-Edison-Swan entirely stopped using the Siemens name in Canada.
Represented by agents off and on for more than 30 years following the closure of the Siemens Company of Canada, Siemens-Schuckertwerke lacked the same Canadian infrastructure that both Siemens-Reiniger and Siemens Brothers (Canada) had built prior to the war. As a result, it was not until a distribution deal with a prominent Ottawa company, the Ahearn and Soper Co. Ltd., in 1955 that the company re-entered the Canadian market.

While Siemens-Reiniger and Siemens Brothers both experienced a smooth and successful return to Canada not long after the end of the war, Siemens-Schuckertwerke had to wait much longer.

Ahearn and Soper Company Ltd. was more than just a distributor of Siemens-Schuckertwerke products. Established in Ottawa in 1881, the company had been active in Canada for nearly as long as Siemens, and had forged a successful record in the Canadian communications business. Its first major projects had been building long-distance phone lines for Bell, but it soon began to diversify, establishing successful businesses throughout the Ottawa area, including the Ottawa Light and Power Company, the Ottawa Telephone Company, and the first all-electric streetcar system in Ottawa. After that, Ahearn and Soper had moved on to work in new fields, including radios, signalling equipment, and VHF transmitters and receivers. While representing Siemens-Schuckertwerke, however, the company was dealing with an entirely different technology: telex.

Telex networks had been completed in other countries already, but one had never been attempted in Canada until late 1957, when Siemens-Schuckertwerke, through its representatives Ahearn and Soper, provided the switching equipment necessary for the creation of a Canadian telex network. Initially built using a telex system was simple. Businesses or individuals paid a subscription fee to the provider, and in return, they had their own teleprinter, which would allow them to communicate with any of the approximately 30,000 subscribers around the world (as of 1959), whenever they wished. Since users were billed by connection time, not message length, messages were normally prepared offline, on a roll of thin paper with five rows of holes that corresponded to the data the message contained, the desired communication was then fed into the telex machine’s reader and sent to the recipient. Messages were routed according to their address, which consisted of a subscriber number, an abbreviated name, and a country code. Subscribers could also communicate in real-time, typing simultaneously with each other, the characters of their message being printed on the receiving machine.

Although the CNCP telex network was eventually replaced with newer, faster forms of communication, it continues to be used around the world. Cablegrams or telegrams are in fact a kind of telex, operating on their own dedicated telex networks. The technology also remains popular in developing countries, where the low cost and reliability make it a favourite of government departments.
THE SIEMENS CANADA ARCHIVES

The Siemens Canada Archives are far less extensive than those at Siemens AG in Munich, but do include some important and valuable company materials. Although the company was federally chartered in 1912, Siemens was carrying on business in Canada well before that date as one document, dated from 1910, so aptly shows. It is a Siemens Canada business report from Toronto dated ten years before the company received a federal charter in Montreal.

Another of the company’s prized possessions is the oil painting of Sir Faraday by Sir William Siemens, head of Siemens Brothers in the U.K. The painting resided in the U.K. for more than a century, but now, it hangs in the boardroom at Siemens Canada headquarters. Sir Faraday Scott painted the Faraday in 1876, just a year after the ship completed laying the first direct transatlantic cable. The Faraday was conceived and designed by Sir William Siemens, head of Siemens Brothers in the U.K. The painting resided in the U.K. for more than a century until it was presented to Canadian CEO William Allan, who had been a Siemens Canada Archives steward for valuable items have become apparent. And by then, it is often too late, for valuable items have been lost or destroyed.

An important part of the archives are the stories of the people who worked for the company throughout the last 100-plus years. Many of these stories have been lost to time, but in preparation for this book, some of these stories and recollections were recorded. They are, and will be, an integral part of the Siemens Canada Archives, often filling in gaps and telling the history of the company for better than balance sheets and bottom lines alone. An important part of the archives are the stories of the people who worked for the company throughout the last 100-plus years. Many of these stories have been lost to time, but in preparation for this book, some of these stories and recollections were recorded. They are, and will be, an integral part of the Siemens Canada Archives, often filling in gaps and telling the history of the company for better than balance sheets and bottom lines alone.

For Siemens, it was a crucial step in its efforts to re-establish its name in North America following the war. In that way, it was a major success. Ahearn and Soper created a subsidiary in New York for the sole purpose of supplying Siemens equipment to the Western Union, which was looking for a direct international telex network. For Canada, the telex network was a significant step in bringing the country together as a modern nation. Not only was it a completely new service for the Americans equivalent, but the Canadian telex network connected the newly expanded country as a single entity. To the east, like the Siemens Brothers Canada (long distance telephone switching equipment), the telex network allowed Canadians to bridge the vast distances that separated them, bringing different regions together and giving them the chance to communicate not only with each other, but the rest of the world.

In 1957, Otto Raab was approached by Siemens-Reiniger to re-establish Consolidated X-Ray, his old business. Agreeing to do so, Raab left X-Ray and Radium Industries and resurrected Consolidated X-Ray, which soon became the sole distributor of Siemens-Reiniger products in Canada. Based out of a new office at 1100 Craig Street East in Montreal, the new Consolidated X-Ray barely had only had three employees, but it grew very quickly, doubling in sales each of its first three years. From $89,000 in 1957, to $175,000 in 1958, and $363,500 in 1959. By then, Consolidated X-Ray had 36 employees and relocated within Montreal to 4945 Sherbrooke Street West, a crowded storefront that was so small a technician once claimed that “if you want to change your mind, you have to step outside.”

The remarkable success of Consolidated X-Ray eventually led Siemens-Reiniger to purchase the company from Otto Raab in 1959. Nothing about the company changed following the sale; it continued to sell Siemens-Reiniger products throughout Canada, and its staff of skilled, professional technicians ensured that every piece of Siemens-Reiniger equipment was well-maintained, and in excellent shape. Otto Raab also remained on as president. The company continued to expand, however, adding new products to its catalogue, such as the Elema-Siemens medical X-ray machines, and the Siemens-Dazor line of light therapy equipment. Despite the financial strain during the early 1960s, Consolidated X-Ray continued to grow, increasing its average annual sales to $494,000 per year over the next few years. In 1965, Consolidated X-Ray received a new name: Siemens Medical Canada Limited.
Throughout the years, Siemens-Reiniger Canada and Consolidated X-Ray were frequent participants at trade shows, presenting the latest Siemens-Reiniger technology to hospitals and doctors from across North America. Their impressive booths, which they often shared with their American counterparts, were a fixture in healthcare-related shows as far back as the 5th International Congress of Radiology in Chicago, in 1937. While expensive to attend, these trade fairs were crucial to the success of the business, allowing the company to present its products directly to clients. Just as importantly, however, these shows gave Consolidated X-Ray’s skilled and knowledgeable staff the opportunity to make a personal connection with potential customers, demonstrating not only Siemens-Reiniger’s quality products, but their own dedication to what they sold.

In August 1962, the 10th International Congress of Radiology was held in Montreal, the home of Consolidated X-Ray. In total, delegates from 53 countries attended the congress, giving Consolidated X-Ray a glorious opportunity to showcase its products, people, and city. The company did not disappoint, taking an entire showroom to itself and offering displays on techniques such as photofluorography (a technique used for chest X-ray screening) and products like the Mirror chair. A second showroom, in the elegant Windsor Hotel, showcased a variety of X-ray equipment, from the Triomat X-ray machine to the Betatron, which was used to administer high-energy radiotherapy. The entire event was a fitting display for Consolidated X-Ray as a company: from a one-man operation during the war, it had emerged as a thriving company, able to mingle with the best and brightest from around the world.

As Consolidated X-Ray was growing steadily, Siemens-Schuckertwerke was embarking on a new stage of its operations. Like the Siemens Company of Canada before it, the impressively named Siemens Halske-Siemens-Schuckert (Canada) was located in Montreal. Under the management of a German president, Alfons Genger, 13 employees worked out of an office at 407 McGill Street. The new company initially struggled to build contacts and make sales, showing a very small deficit of $500 for its first year. Things soon improved, however, and under the guidance of a new manager, D. Bliersbach, the company showed an after-tax profit of nearly $60,000, most of which came from ongoing
For many people, working at Siemens is more than just a career; it is one of the most important relationships of their lives. They feel part of the company, its products, and its success. Feelings like those do not simply appear; they take time to grow, and for many employees, that pride really began in the late 1950s and the early 1960s with the return of Consolidated K-E-R and the establishment of Siemens Halske Siemens-Schuckert. Without exception, former Siemens employees speak fondly of that time and what they accomplished.

Many of those stories feature Dr. Hermann Grabherr, head of Siemens Canada at the time. Known for his intelligence, Dr. Grabherr was also notoriously fastidious.

"Dr. Grabherr must have come from the Prussian military," says Karl Hassenbach, "He used to make sure all the window blinds were lined up at exactly the same height, and he did the same thing with all the desks." Once, when moving a piece of dental machinery across a carpeted floor, the employees told Dr. Grabherr that they were being careful not to spill the oil inside the equipment. Horrified, Grabherr looked on nervously, providing direction on where they should move the piece, unaware that there was no oil in the chair and that everyone was having fun at his expense.

Dr. Grabherr was also a very good boss. Bruno Schwarz recalls him as an approachable man. "You could come into his office at any time." Schwarz says, "His door was always open, and he was always willing to consider a problem." It was Grabherr’s insistence that Siemens Canada use the revenue from its involvement in the CNCP telex network to diversify, laying the foundation for the different products and services that the company would offer in the late 1960s and early 1970s. "The success of Siemens Canada today," Schwarz says, "were due in a large measure to Dr. Grabherr’s work to build up the company."

In 1965, yet another new president, Dr. Hermann Grabherr, took over Siemens Halske Siemens-Schuckert and changed its lengthy name to something shorter, Siemens Canada Limited. Under Dr. Grabherr’s guidance, Siemens Canada Ltd. began to diversify, supplementing its profitable work on the CNCP telex network with additional products and services. This paid off, and the company participated in several larger projects, such as a 35 MW high-pressure, high-temperature steam turbine generator and five compressor drive turbines for the heavy water plant at Glace Bay, Nova Scotia.

Other products, such as the Elmiskop Electron Microscope, also were proving to be popular. The Elmiskop I, produced in 1947–1949, was constructed at the University of Toronto. A year later, Siemens released the first commercial transmission electron microscope. This model, which had a magnification of thousands, not hundreds, allowed researchers to see things that had been previously invisible, even with the use of an optical microscope.

Following the Second World War, Siemens continued to refine its electron microscope line. Its first commercial model, the Elmiskop I, in 1950, was quickly revised and improved, resulting in the Elmiskop I. First displayed at the 1954 International Conference of Electron Microscopy in London, the Elmiskop I was capable of producing magnification of up to 250,000 times. The first electron microscope to use a "double condenser," which allowed routine electron diffraction, the Elmiskop I was particularly useful for researching crystalline material. This made it very popular with researchers and industry alike, and Elmiskops were often in use 24 hours a day at institutions that were fortunate enough to have such a valuable device.

In Canada, home of the first practical electron microscope, the Elmiskop I found a particularly receptive market. By 1963, a number of universities and labs had purchased the microscope, including McGill University (which had three), the University of Alberta, the National Research Council, and Atomic Energy Canada Limited. The majority of these units stayed in service well into the 1980s and beyond. By 1985, roughly 30 Canadian Elmiskops remained in use and were regularly serviced by Siemens technicians.

The electron microscope provided the 20th century with some of its most awe-inspiring images. First conceived by the famous Hungarian physicist Leo Szilárd but never built, the electron microscope was constructed as a prototype in 1931, and a patent for the design was obtained by Siemens-Schuckertwerke later that year. While these early models were capable of providing magnification of 400 times, additional prototypes were built throughout the 1950s and 1960s. When a practical electron microscope was constructed at the University of Toronto. A year later, Siemens released the first commercial transmission electron microscope. This model, which had a magnification of thousands, not hundreds, allowed researchers to see things that had been previously invisible, even with the use of an optical microscope.

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One of the formative events in Canadian history, the 1967 International and Universal Exposition, or Expo 67, was never supposed to come to Montreal.

What resulted, however, was something magical, an event that galvanized the entire country and tapped into the national pride that was rising during Canada’s 100th anniversary. Under the guidance of Jean Drapeau, Montreal’s mayor, Pierre Dupuy, a diplomat, and a management group that became known as “Les Durs” (the tough guys), the entire project proceeded on schedule and, perhaps more surprisingly, largely within budget. It was a remarkable time of co-operation and collaboration between Canada’s French and English communities, a combination that Pierre Berton called “the secret of Expo’s success—the Québécois flair, the English-Canadian pragmatism.” Ultimately, Expo 67 would be remembered as one of the most successful ever, setting a single-day attendance record for a world’s fair (with 569,000 visitors) and being hailed by one Montreal newspaper as “the most staggering Canadian achievement since this vast land was finally linked by a transcontinental railway.”

Based in Montreal and growing every year, Siemens Canada Limited and Siemens Medical Canada played important roles in the spectacular and innovative that made Expo 67 such a success. Starting in 1966, Siemens began work on not one but three different projects: the power supply and illumination of the spectacular and tent-like German Pavilion; the underwater illumination of a display of fountains in an artificial lake; and the illumination of water illumination of a display of fountains. Employees willingly worked around the clock to complete the projects. There was, in the words of one employee, “never any excitement around Expo, and there was a fantastic feeling of excitement and pride… People would work all day and night if they had to, and would have done it for no pay, because they were so proud to be a part of it.” It goes without saying that the projects were completed on time!

When Expo 67 opened, it was a proud time for the Siemens employees who had put in so much effort into the projects and a watershed moment for the entire country. There, in the collection of spectacular pavilions and displays depicting the Expo theme of “Man and His World,” was proof of how far Canada had come in its first 150 years. The rest of the world could now see what Canadians had known all along: that their country belonged on the world stage, and that Canada was capable of putting on a world-class show of technology, culture, and art.

Expo 67 was also a symbol of everything that made Canada great, a focus for those feelings of national pride that so many Canadians feel but often keep hidden from the view. Siemens employees in Canada felt doubly proud. As Karl Hassenbach, a Siemens Medical of Canada employee at the time, explains, “It was an unbelivable time. You were so proud working for Siemens and the equipment and projects we had. They had reason to be proud of the darkest days of the Second World War.”

Siemens had emerged stronger and more resilient than ever. After years of rebuilding, Siemens was able to not only participate in one of Canada’s greatest events, but to play an important role in making it a success. It was truly a day for celebration.

The bronze statue by J. Berthold—which commemorates the Expo 67 theme, “Man and His World”—was donated by the German government for Expo 67 and is on display at Siemens, to Siemens Canada Limited.

A FAIR TO REMEMBER: EXPO 67

A FAIR TO REMEMBER: EXPO 67

FROM SIEMENS & HALSKE TO SIEMENS AG

After years of operating independently, in 1966, Siemens & Halske, Siemens-Schuckertwerke, and Siemens-Reiniger merged to form Siemens AG.

Siemens’s 1967 participation—participating in Expo 67 and contributing to the German Pavilion—represented a major milestone in Siemens’s development as a global player in the electronics and technology industry. The company’s involvement in the fair was seen as an opportunity to showcase its latest innovations and to strengthen its brand’s reputation as a leader in the field.

Throughout the event, Siemens contributed to the German Pavilion, which was designed to be a symbol of technology and innovation. The pavilion featured a variety of exhibits, including a combination of electrical equipment, communication technology, and industrial technology. One of the most notable installations was a large showcase of Siemens’s latest innovation in television technology, which was displayed in a dedicated area within the pavilion.

In addition to its participation in the pavilion, Siemens also sponsored a number of activities and events during Expo 67. The company hosted a series of lectures and demonstrations, which were attended by thousands of visitors. These events featured some of the company’s leading experts, who discussed the latest developments in technology and offered insights into the future of the industry.

Siemens’s involvement in Expo 67 was well-received by the public and was widely praised for its contribution to the event. The company’s participation in the fair helped to establish its reputation as a global leader in the field of technology and was seen as a major milestone in the company’s history.

Siemens’s success at Expo 67 was seen as a turning point in the company’s development, and the event provided a platform for Siemens to showcase its latest innovations and to strengthen its brand’s reputation as a leader in the field. The company’s involvement in Expo 67 was seen as a major milestone in the company’s history and helped to establish its reputation as a global leader in the field of technology.

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Expo 67 saw the creation of some truly memorable buildings and structures: the Habitat 67 housing complex, the inverted pyramid of the Canadian Pavilion, and the 20-storey geodesic dome of the United States Pavilion. The massive, tent-like pavilion of the Federal Republic of Germany, however, was unique. Designed by Frei Otto, the German architect who would later go on to design the roof of the 1972 Munich Olympic Arena, the pavilion covered 8000 square metres at the tip of Notre-Dame Island. Supported by a steel wire net that had been suspended over eight masts, each standing 38 metres high, the pavilion was anchored by 30 side cables that were sunk in solid concrete foundations that had been designed to look like sculptures and drawn down to the ground at three points to drain off rainwater. That tension gave the entire building—a dynamic, elegant shape that was determined by the lines of force acting on it.

Inside the tent were platforms, walkways, stairs, and other pieces that had been built around the individual exhibits. While the design was meant to allow visitors to walk throughout the pavilion freely, the floor space was so large that 12 designers were given the task of organizing and presenting the exhibits. As a result, some critics felt that the exhibits lacked a central organizing concept to match its bold external design. Nonetheless, the content of its exhibits—from Lufthansa cutlery to Gutenberg’s printing press—made for a fascinating experience. The full beer garden that was located inside the tent certainly helped, too!

Siemens played an integral role in the pavilion’s final appearance. Power for the entire structure was provided by Siemens, as was the illumination for all of its exhibits (and the beer garden). Siemens also provided material for display, including a Betatron accelerator, used in radiotherapy, which was bound for a hospital in the United States following Expo 67. The open nature of the pavilion caused problems, though, as Karl Hasenbach, a Siemens Medical of Canada employee recalls: “The German tent was open, and because there was no way to stop the humidity from the river, the equipment had totally rusted in place! We had to fly a crew over from Germany to take the [Betatron] apart piece-by-piece and remove all the rust, and then reassemble it and transport it to the U.S. for installation.” After visits by a number of dignitaries, including Peter von Siemens, the great-grandson of Werner von Siemens and a member of the board of Siemens AG, and the president of the Federal Republic of Germany, Heinrich Lübke, the pavilion closed on October 27, 1967, 183 exciting and eventful days after its opening.
Expo 67 had been a monumental success for Canada and for Siemens. Canada had celebrated its centenary with the world, showcasing everything that the country had to offer, and Siemens had demonstrated that not only had its Canadian operations returned from the brink of oblivion, but that it was capable of participating in the largest, most important projects that Canada could offer. That achievement filled the employees of Siemens Canada and Siemens Medical Canada with justifiable pride. They had built the company’s success in two short decades, and as the two companies moved into their shared new offices and factory in Pointe-Claire, just outside of Montreal, the challenges of the war and the rebuilding process seemed to be well in the past. The future seemed bright.

Canadians everywhere shared that optimism. Basking in the glow of its time on the world stage and the prosperity brought about by a long period of economic expansion, Canada seemed poised to continue its incredible progress. The emergence of an energetic young politician by the name of Pierre Trudeau like, in the words of author Gordon Donaldson, “a stone through a stained-glass window,” seemed to capture that energy. “Trudeaumania” swept much of Canada and for many, it seemed that anything was possible.

The 1970s, however, proved to be a test for everyone in Canada. From the Energy Crisis in the middle of the decade to domestic political issues, the optimism of the late 1960s was challenged on all sides. The economy cooled and the postwar boom, which had carried the country through the 1950s and 1960s, began to fade, forcing many organizations to reduce or restructure their operations. Siemens was no different, but rather than simply reducing its activities, the company aggressively diversified its product line and sought opportunities in new sectors. Staff received training at home and abroad, new departments were created, and subsidiaries were acquired. Manufacturing operations in Canada were expanded, and increasing numbers of the products sold by the company were made in Canada. This response ensured that, far from damaging the company, the challenges of the 1970s strengthened Siemens Canada, solidifying its identity as a local enterprise, one that combined the best in German innovation and engineering with highly skilled Canadian workers and well-made Canadian products. Like Canada itself, which used the 1970s to develop its infrastructure, Siemens used the challenges of that decade to lay the foundation for the successful company that it would become.

"The task of a company’s top management is to watch and give the necessary direction so that healthy, fruitful evolution of technology takes place in the firm...[and] new advances are attempted...."

– Wilhelm von Siemens, quoted by Richard Fellinger

Obstacles and Opportunity: The Diversification of Siemens Canada
A NEW HOME FOR SIEMENS CANADA

In the years since the formation of Siemens Brothers Dynamo Works (Canada) in 1909, Siemens had experienced many things in Canada: the challenge of its early years, the growing success of the 1920s and 1930s, the despair of confiscation, and the heady triumph of its involvement in Expo 67.

What Siemens had never enjoyed, however, was a Canadian head office of its very own. The various companies had occupied a number of different offices—some modest and nondescript, others large and impressive—but none had been owned by the company. None had been the home of Siemens Canada.

That changed in 1964, when both Siemens Canada and Siemens Medical Canada moved into a newly erected building at 7300 Trans-Canada Highway. Built in the Industrial Park of Pointe-Claire, a western suburb of Montreal, the new building contained offices for both companies, a factory for sheet-metal fabrication, warehouse space, and a workshop for manufacturing motor control centres, a new product that was becoming a focus for Siemens Canada at the time. Painted in a distinctive red colour—it was, many said, the only red building in Montreal at the time—the “Red Barn,” as the building was affectionately called, soon became a landmark for local residents.

“Painting the building red was the least thing Siemens ever did,” explains Fred Rang, a Siemens employee at the time, “because everyone in Montreal knew that building.” The Red Barn would be the iconic home of Siemens Canada for the next 27 years.

As Siemens Canada and Siemens Medical Canada were moving into their new home, both companies were also adding additional offices around the country. Siemens Medical Canada, which had grown to 77 employees by that time, opened offices in Vancouver, Calgary, London, Quebec City, and Saskatoon. Siemens Canada opened a new office of its own in Toronto for power engineering products. Every major region of the country was now covered by the two companies, ensuring that they could provide clients not only with their growing line of products, but also with their skills, knowledge, and service. Rather than providing only equipment, Siemens Canada could provide solutions, as a 1969 advertisement asks, “Why not start planning ahead with Siemens today?”

More and more companies were increasingly deciding to do just that. In 1967, the Canadian government built a wind tunnel at the National Research Centre (NRC) in Ottawa to conduct research into Short Take Off and Landing (STOL) aircraft for the future. Siemens Canada, which had grown to 275 employees by this time, opened a branch office of the missile at the NRC facility in Ottawa, where it would remain until 1995.

Siemens Canada Limited advertisement in The Financial Post, 1969

MEMORIES OF THE RED BARN AND THE GREAT SNOWSTORM OF 1971

While the “Red Barn” was famous among Montrealers for its striking colour, the building was just as memorable to the employees who worked there over the years. Many of them have vivid, amusing stories of what took place in and around the red building, particularly during its early years. One memory, however, was more exotic than a certain snowstorm in March 1971. Snowstorms are not uncommon in Montreal, of course, but this one was special. Later called “The Storm of the Century,” the blizzard dropped so much snow that several people who had gone to work that day became trapped inside the red building and were unable to leave. Karl Hassenbach, an employee with Siemens at the time, was unable to drive to work, but lived nearby and used a pair of snowshoes to make the trek to the office. “As I walked on the snowshoes,” Hassenbach recalls, “I stepped on something hard, and it turned out to be the roof of a car buried in the snow.”

Finding people unable to leave, Hassenbach returned with additional snowshoes and led the few people trapped in the building back to his apartment. Unfortunately, Hassenbach says, “we hadn’t done grocery shopping and had virtually nothing to eat other than a lot of bottled choke cherry wine and instant soup.” While the wine kept everyone happy and helped some go to sleep, several (or foolishly) souls attempted to walk back to the building. Unfortu- nately, Hassenbach says, “we hadn’t done grocery shopping and had virtually nothing to eat other than a lot of bottled choke cherry wine and instant soup.”

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Siemens and the Alberta Oil Sands, Part One

No country in the world has larger discovered surface deposits of bituminous sands—or oil sands, as they are commonly known—than Canada. Four large deposits have been identified and explored so far: all in Alberta: the Peace River Oil Sands, the Cold Lake Oil Sands, and the Albianas Oil Sands; and the Athabasca Oil Sands, the largest deposit of crude bitumen in the world. These large collections of bitumen give Canada the second largest confirmed oil reserve in the world (after Saudi Arabia), and some estimate that the oil reserve in the world (after Saudi Arabia) may actually be even greater.

A natural occurring mix of sand, clay, water, and bitumen, a viscous form of petroleum, the oil sands deposits have been used for centuries by the indigenous Cree people to waterproof their canoes. Only in the last 45 years, however, has it been commercially viable to extract and upgrade the bitumen on a larger scale. After decades of small, largely inefficient plants on the oil sands, the Alberta provincial government issued permission to the Great Canadian Oil Sands (now known as Suncor Energy) to build a large-scale bitumen on a larger scale. After decades of small, largely ineffective plants in the oil sands, the Alberta provincial government issued permission to the Great Canadian Oil Sands (now known as Suncor Energy) to build a large-scale oil sands plant near Fort McMurray. Construction began in 1964, with the plant opening in 1967. Designed to produce 45,000 BPCD (barrels per calendar day), the plant was a landmark in oil sands development, pioneering both the “Clark” hot water extraction process and the use of massive 2300 tonnes Bucket Wheel Excavators (BWEs) to revue the bitumen. Although it was not profitable during its early years, the plant was a precursor for future oil sands development in northern Alberta, and when the federal government finally decided to allow oil sands producers to charge world prices for their oil, the rush to develop the oil sands officially began.

Suncor has been involved in the oil sands since the early days of their development, completing projects for both Great Canadian Oil Sands/Suncor and Syncrude. For Fort McMurray’s Suncor Oil Sands plant extensively supplied Siemens equipment, and when Syncrude (a consortium of major companies) began production at the Milobil Lake plant in 1978, Siemens supplied the electrical equipment for the four Bucket Wheel Reclaimers (BWRs) as well as more than 20 conveyors. Siemens switchedgears, motor control systems, and automation equipment also controlled the long conveyor belts at the head station of Syncrude’s conveyor system in the Athabasca Oil Sands, and a similar system at Suncor’s Fort McMurray installation used two 2170 hp Siemens drives. These were just the beginning; however, more was still to come, and Siemens would play a significant role in the oil sands for the next 40 years.

Siemens Canada Limited

In 1973, after six successful years at the helm of Siemens Canada, Dr. Herrman Grabher returned to the head office of Siemens AG in Munich and was replaced by Dieter Schnauss, who had been previously posted to Germany and South Africa.

Soon after Schnauss arrived in Canada, Siemens Medical Can- ada—which had operated independently since its formation in 1965—became part of Siemens Canada Limited. Since the two companies already shared the building in Pointe-Claire, the merger made sense on many levels. The result was a larger, stronger Siemens with 250 employees and sales exceeding $20 million a year, the new Siemens Canada Limited was well-represented in the medical, electrical, electronic, and telecommunications fields, and it had an extensive network of branch offices across the country.

The heart of this new company was its manufacturing opera- tions. Covering 3000 square metres and employing 70 work- ers, the Pointe-Claire sheet-metal fabricating plant pro- duced enclosures for a variety of products, motor control centres, and other control equipment for electrical systems. The factory, how- ever, was only a part of the manufactur- ing capacity of Siemens Canada. Plants in LaSalle and Drummond- ville, which had been acquired by Siemens Canada some years ear- lier, featured 2040 and 7850 square metres of space, respectively, and produced a wide range of electrical items, including switch- boards, panel boards, circuit breakers, and switches, and other electrical items. Smaller plants in Edmonton and Toronto were also in operation at this time, and they underwent expansion through the late 1960s and early 1970s in anticipation of up- coming projects. The days of Siemens Canada ordering items from Germany and hoping they would arrive in time to fill customer orders were long gone. Now the plants could manu- facture much of what they needed themselves.
As Siemens Canada celebrates its 100th anniversary, it is hard to imagine it as anything but a large, successful company. Throughout the first part of the 1960s, however, Siemens was still a very small company, struggling to gain acceptance and notice in Canada. “Everyone thinks that over the past 50 years [or more] Siemens has been a big, multi-national company and a player in Canada,” explains Bruno Schwarz, who started with Siemens Canada Limited in the late 1960s, “but it wasn’t.” While that small size may have posed challenges to the company, it made the employees a tight-knit group, all working together to grow Siemens Canada, and they have happy memories of that time.

Different employees have different memories of the product or project that spurred the growth of Siemens Canada. “Here was an unknown [Canadian arm of a] German company competing with Westinghouse, Allan Bradley, Square D., and other big names. Initially, it was a big, multi-national company and a player in Canada,” explains Bruno Schwarz, who started with Siemens Canada Limited in the late 1960s, “but it wasn’t.” While that small size may have posed challenges to the company, it made the employees a tight-knit group, all working together to grow Siemens Canada, and they have happy memories of that time.

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While Canada was learning about Siemens, the company also had to learn about Canada. Employees recall that Germany knew the product and the skill, but three had to be adapted to the distinctive needs of Canada. “If you want to convert a customer, you have to have local expertise,” explains Gerdi Reich, who worked with Siemens in Edmonton, Inuvik, and Singapore throughout the 1980s. “Unless you can back it up with local knowledge and infrastructure, that is difficult.” With each success in Canada, meeting customer expectations became easier and Siemens integrated itself into Canada more fully.

Despite these challenges, Siemens Canada made significant strides during the 1960s and 1970s, and employees from that time have fond memories of their company and its accomplishments. “I must say,” Lutz Rindt explains, “that I am the luckiest guy that one guy in a billion people out there could even spell Siemens and would know what Siemens did.”

Recognition took time. Having travelled to Ottawa to complete the sale of an electron microscope in the early 1970s, Schwarz recalls being asked about Siemens by a supply manager with the federal government. “Wow, big Siemens,” the manager asked. “200 or 300 employees worldwide?”

Amaral, Schwarz returned home and sent the manager copies of the History of the House of Siemens, a two-volume set by Georg Siemens that documented the first 100 years of Siemens. As Siemens celebrates its 100th anniversary, it is hard to imagine it as anything but a large, successful company. Throughout the first part of the 1960s, however, Siemens was still a very small company, struggling to gain acceptance and notice in Canada. “Everyone thinks that over the past 50 years [or more] Siemens has been a big, multi-national company and a player in Canada,” explains Bruno Schwarz, who started with Siemens Canada Limited in the late 1960s, “but it wasn’t.” While that small size may have posed challenges to the company, it made the employees a tight-knit group, all working together to grow Siemens Canada, and they have happy memories of that time.

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Amaral, Schwarz returned home and sent the manager copies of the History of the House of Siemens, a two-volume set by Georg Siemens that documented the first 100 years of Siemens. As Siemens celebrates its 100th anniversary, it is hard to imagine it as anything but a large, successful company. Throughout the first part of the 1960s, however, Siemens was still a very small company, struggling to gain acceptance and notice in Canada. “Everyone thinks that over the past 50 years [or more] Siemens has been a big, multi-national company and a player in Canada,” explains Bruno Schwarz, who started with Siemens Canada Limited in the late 1960s, “but it wasn’t.” While that small size may have posed challenges to the company, it made the employees a tight-knit group, all working together to grow Siemens Canada, and they have happy memories of that time.

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Over the years, Canadian researchers have made substantial contributions to the field of medicine: Barbara Bain and the bone marrow compatibility test, Dr. John Hopps and the first external pacemaker, and the discovery of insulin by a team of researchers at the University of Toronto. Working in the field of radiology, Dr. Derek F.C. Harwood-Nash was one such innovator. Born in Southern Rhodesia (now known as Zimbabwe) and educated in South Africa, England, and Canada, Dr. Harwood-Nash was a pioneer in the field of pediatric neuroradiology. As the chief of radiology at the Hospital for Sick Children in Toronto, Dr. Harwood-Nash made Toronto the capital of studies in pediatric neuroradiology, and men and women from around the world soon flocked to “SickKids” Hospital and the University of Toronto, where Dr. Harwood-Nash taught, to train under him.

During his time at SickKids Hospital, Dr. Harwood-Nash worked with Siemens Canada to produce an innovative piece of equipment: the Infant Pod (or IPOD) chair. Designed to assist with conducting neuroradiological procedures on children, the IPOD chair, which was used in conjunction with the Mimer 3 radiographic system produced by Elema-Schonander, was meant to properly position an infant during demanding examinations like the pneumoencephalogram (where spinal fluid is replaced with a gas to improve the contrast of X-rays taken of the brain). Prior to the IPOD, similar chairs had only been built for adults, making neuroradiological procedures difficult, even impossible, to perform on infants or pediatric patients.

Upon its completion, the IPOD went into immediate production and was added to the international product line of Siemens, but demand was low. As Karl Krametz, a former vice president of Siemens Canada Medical and co-designer of the IPOD, explains, while the concept “was excellent... the demand was very limited and only about 20 units were sold worldwide.” The chair proved its worth time and time again, but by the end of the 1970s, it was supplanted by other forms of medical imaging. The original prototype, which was located at SickKids Hospital, was relegated to the basement to collect dust until 2009, when it was donated to the Siemens Canada Archives.

Since the Great Depression, Canada’s population has become increasingly urban as people have moved to cities in search of regular employment. In the 1970s, however, that trend shifted slightly, and city cores declined in size, while their suburbs grew. This outward growth stressed existing city infrastructures and forced governments at all levels to make large investments in projects such as public utilities, healthcare, and transportation.

Since it supplied its first generator to the City of Toronto at the end of the 19th century, Siemens Canada has had a long history of providing transportation solutions in Canada. That tradition continued in 1975, when Siemens Canada was awarded a $7.7 million contract (in partnership with Duewag, a German manufacturer of light rail vehicles) to provide electrical and electronic equipment on 14 cars for Edmonton’s new Light Rail Transit (LRT) system. Built for the 1978 Commonwealth Games, Edmonton’s LRT was a North American first, making the Alberta capital the only city on the continent with a light rail system.
Two of the largest projects undertaken by Siemens Canada during the 1970s were Light Rail Transit (LRT) projects for Edmonton and Calgary. Each of these LRT systems began with a small fleet of Siemens-Duewag U2 cars. Articulated Light Rail Vehicles (LRVs) capable of carrying 264 passengers at a time, the U2 cars were originally designed for use in subways such as the Frankfurt U-Bahn, where they are still in use. A U2 train will usually run with three U2 cars (or six articulated segments) and can achieve a maximum speed of 88 km per hour.

Since the systems first opened, Calgary and Edmonton grew substantially. The population of Calgary, for instance, grew 25 per cent during that period, and the ridership on the C-Train increased by a staggering 50 per cent, making it the second busiest light rail system in North America, with 252,000 riders per week and over one billion users during its first 30 years. While less spectacular, Edmonton’s growth was also significant, and both cities had to increase the capacity of their LRT systems.

To meet this increase in demand, both cities ordered state-of-the-art Siemens SD-160 LRV cars. Although they have a smaller capacity than a U2 LRV—236 passengers—the SD-160 LRV cars are significantly shorter and not articulated, allowing six of them to be run together in a single train, significantly raising the number of passengers per train. Currently, the C-Train features 72 SD-160s and 80 U2s, but additional orders will expand the fleet to 227 LRVs when the cars are delivered. Edmonton’s LRT system also mixes the two generations of cars, and its 37 U2 LRVs are currently undergoing upgrades to extend their operating life, three vehicles at a time.
Throughout North America, growing cities and utilities were struggling to supply reliable and affordable electrical power. In Canada, that need led many governments to turn to the country’s most reliable source of power: hydroelectricity. Renewable and available in abundance throughout the country, hydroelectricity had been a major source of power for Canada since the first transformers made the long-distance transmission of electricity a possibility in the 1890s. When demand for power grew in the 1960s and 1970s, it only made sense to turn to hydroelectricity once more.

Siemens has always understood Canada’s hydroelectric potential. From the inspiration that William Siemens felt on first seeing the incredible power of Niagara Falls to the decision of Siemens Brothers to create a company in Canada because of “the availability of enormous usable water power for economic development,” Siemens saw the energy that was waiting to be harnessed. Since those early days, Siemens Canada has been involved in many Canadian hydroelectric projects, supplying generating systems, switchgear, and transmission equipment to industry and all levels of Canadian government for decades. This experience made it natural for SELL to play a significant role in one of the largest, most-prominent hydroelectric projects anywhere in the world: the Nelson River Hydroelectric Project.

While Edmonton and Calgary were addressing challenges of growth throughout the middle of the 1970s, other centres were faced with obstacles of their own.

Flowing from Lake Winnipeg to Hudson Bay in the north, the Nelson River is one of Canada’s largest rivers, carrying an astonishing 2370 cubic metres per second of water to Hudson Bay. That immense volume, combined with the river’s substantial drop, made it a perfect candidate for hydroelectric projects, and in the 1950s, a project to establish a series of dams and generating stations along the river was begun. The first generating station came online in 1957, and since that time, five others have been added, including the 1010 MW Long Spruce Generating Station on the Lower Nelson, which uses Siemens SF6 gas-insulated switchgear that was installed in 1975.

The construction of the generating stations on the Nelson River presented a significant challenge for Manitoba Hydro: the river may provide enormous amounts of electricity, but how was that power to be transmitted from these stations (the majority of which were located near Hudson Bay) all the way to the urban areas in the south of the province? Ultimately, it was decided that a long transmission line—specifically a high-voltage, direct current (HVDC) transmission line—that could transmit the electricity in a cost-effective and efficient manner—was needed. In time, that single line would become two lines: the Nelson River Bipole 1 and 2, two HVDC transmission lines carrying the power from the generating stations along the Nelson River to converter stations near Winnipeg.

The first of these lines, Bipole 1, was completed in 1977 by English Electric and GEC Alsthom. Siemens, as part of a partnership with electrical engineering companies Brown Boveri Company (BBC) and AEG, began to work on Bipole 2 in 1978. An amazing 940 km long, with a power rating of 900 MW, Bipole 2 used Siemens thyristor modules and 500 kV smoothing reactors to stabilize the direct current. After the completion of the first stage of Bipole 2, Siemens and its partners went on to increase the rating of the line, which ultimately reached 2000 MW in 1985. At the time of its completion, Bipole 1 used the world’s highest operating voltage to deliver the electricity from a remote site, and both of the bipole lines have been recognized by the Institute of Electrical and Electronics Engineers on its list of milestones, alongside such iconic inventions as Volta’s electric battery, the colour television, and the Mercury spacecraft that was used in the first human orbital flight.
A CANADIAN FIRST AND NEW ACQUISITIONS

One of its most significant achievements during this period occurred in the late 1970s. For decades, the Canadian telecommunications sector remained dominated by Bell Canada, which controlled roughly 60 per cent of the market. Prior to the Canadian government opening the private communications market, Northern Telecom, a subsidiary of Bell, supplied its parent company with the products that it needed for its network with one exception: the SD 192 switch manufactured by Siemens. Standardized by Bell in Canada in 1979, the SD 192 was a Canadian first, the only piece of out-of-sourced equipment used by the telecommunications giant. It also created quite a stir, leading many people to question how SELL could boast Canadian communications such as Mitel, an Ottawa-based manufacturer of telecommunications equipment, when it came to producing standardized products? In total, SELL supplied 120,000 lines to Bell between 1979 and 1942, with board and system assembly taking place at the Red Barn in Pointe-Claire.

That is not to say the period was entirely without challenges. While SELL had enjoyed a number of notable successes during the 1970s, it was not immune to the difficulties experienced by the rest of the large projects that occurred. Large projects may be several, but the total number of orders was down and poor exchange rates adversely affected purchasing power for everyone. Rather than simply biding their time to ride out the downturn, however, SELL took the opportunity to strengthen itself. As Dr. Hettler announced in a 1979 internal newsletter, “While it is clear that the present economic climate is not allowing us to change our product line,” SELL would plan for the future by diversifying into new areas.

The expansion envisioned by Hettler was achieved through both the acquisition of subsidiaries to add to the SELL fold and the creation of agreements with other companies to distribute their products in Canada. The first step in this process was the acquisition of distribution rights for Siemens-Alka Inc. (SAI) power engineering equipment. A manufacturer of Switch Chambers USA and Siemens AG, SAI manufactured a broad line of electrical equipment for utilities and industry. Products like power circuit breakers, switchgears, voltage regulators, and a variety of motors and drives bolstered the SELL product line. In 1980, the instrumentation division of G.D. Scree & Company was integrated into SELL as a divisional division of SELL. While G.D. Scree was most famous for producing such widely used devices as Drägerhals and its instrumentation division manufactured ultrasound equipment for diagnostic imaging and hospital monitoring equipment to study organ functions and blood flow. The integration of that division into SELL’s medical operations added a skilled staff of 29 and sales of nearly $10 million.

In many ways, the slowdown in the Canadian economy marks the beginning of the modern era of Siemens Canada. Like Canada itself, SELL established the foundation for the business that it would become in that tumultuous time. Optimism, like that of all Canadians, had been challenged by a difficult decade, but rather than accepting the challenges of the 1970s, Canada and Siemens had tackled them directly, using the opportunity to build for the future. Now, as Pierre Trudeau returned to office for a final time in 1980, Canada and Siemens Canada had changed drastically. In order to fill this need, Siemens would have to rebuild after the Second World War and painfully regain its footing. Many German companies, OSRAM included, were forced to rebuild after the Second World War and painfully regain their footing. Many German companies, OSRAM included, were forced to rebuild after the Second World War and painfully regain their footing. 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Siemens Electric Limited (SELL) entered the 1980s stronger than ever: its core sectors were participating in important projects across the country, its acquisitions were providing it with a diverse line of products and services, and its Canadian plants were producing high-quality, innovative products. It had navigated the tumultuous 1970s with a clear vision for the future and had emerged a strong, diverse company of 400 employees that was well-positioned for the future. Just as significantly, however, SELL was becoming an important part of the Canadian industrial landscape; the struggle to claim a place in the Canadian market that had driven so many earlier incarnations of Siemens in Canada seemed to be at an end. No longer merely the representative of a German parent company, SELL had emerged as a uniquely Canadian organization.

That success meant SELL could now expand, identifying and embarking on new challenges. As William B. Waite, the first Canadian chief executive officer (CEO) of Siemens Canada, explained in a 1987 publication celebrating the 75th anniversary of the company, “Canada, the world’s largest small nation, is today, still, a new and unexploited market in which our company has extreme innovative technology at its disposal. It is our task to find opportunities for applying this advantage...” Despite a deep Canadian recession and years of fluctuating interest rates, SELL did just that, undergoing a period of extraordinary growth, nearly quadrupling its workforce due to several important and high-profile acquisitions. It also participated in a number of Canadian projects, from the roof on Toronto’s Sky Dome (now Rogers Centre), to the construction of a “super ferry” in British Columbia and the refurbishment of the Canadian Coast Guard’s flagship icebreaker, the Louis S. St-Laurent. Everywhere one looked, SELL was hard at work, enjoying one of the most successful periods in the history of Siemens Canada.

"Flexibility doesn't mean discarding traditions at any price; it means improving them faster and accepting new ideas.”

Achievements and Acquisitions:
Siemens Canada under William B. Waite

Siemens S40 cell phone

The Atomic Energy of Canada Limited reactor at Chalk River, Ontario, supplies approximately one-third of the world’s medical isotopes for diagnostic imaging. Siemens has had a long history with Chalk River. In 2009, when a heavy water leak temporarily closed down the facility, Siemens announced that it was taking steps to help offset the resulting shortage of medical isotopes by increasing production at its molecular imaging radiopharmacies and distribution centres around the world.
A new decade, however, brought little relief. When inflation showed no signs of slowing, and with the wave of industrialization, economies including Canada, were forced to limit the growth of the money supply. Interest rates soared, and in 1981, the country had plunged into a recession that proved to be worse and deeper than in the past.

For SELL, now under the leadership of its first Canadian CEO and president, William B. Waite, the recession was a significant challenge. While the company had diversified its product line with the acquisition of a number of subsidiaries in the years leading up to the recession, rising interest rates and continued weaknesses in all sectors of the Canadian economy meant that its clients were purchasing less and starting fewer projects. Orders dwindled to less than one-third of what they had been for the first year of the recession, reaching $1.6 million in 1981–82 as companies rushed to begin large projects before interest rates climbed further, but that soon stopped and orders plummeted, dropping over 50 per cent of the following year.

Many companies would have struggled to survive such a decrease, but it is how SELL’s forgiveness during the late 1970s becomes apparent. While it did follow the principles set down by the Canadian government in its infamous "as per cent guidelines" in order to manage costs, SELL’s aggressive diversification and pursuit of large projects ensured that while orders were down, sales actually climbed as projects that had been planned years earlier were finally started. As a result, SELL’s revenue was consistent throughout the middle of the decade, before beginning to return to normal levels in the latter part of the decade, before beginning to return to normal levels. That consistency, combined with concerted efforts at SELL to reduce costs, favour salaries, and streamline operations, ensured that the company survived the recession quite comfortably. No single sale was responsible for this remarkable performance, but a number of innovative, high-profile projects and services contracts kept SELL busy during these difficult times. For example, the Medicaid Division, which had garnered a considerable share of the radiological imaging market, was awarded a $5.9 million contract in June 1982 to supply Victoria General Hospital in British Columbia with a fully electronic digital X-ray system. The first in its kind in Canada, the suite of X-ray, nuclear medicine, and ultrasound equipment allowed X-ray images to be digitally enhanced, and stored, all without the use of traditional film. The goal was to eventually eliminate the countless conventional X-ray films, folders, cabinets, and darkrooms that had traditionally been needed for radiological imaging, saving the hospital money and space.

SELL’s other efforts included its own notable projects, the company’s drivers and motor control systems remained popular, and between 1980 and 1985, SELL provided two 9000 hp, 1800 rpm variable-frequency synchronous motor drives to Polysar Inc., a manufacturer of large projects entering the New decade, new challenges.

Canada can be forgiven if they were glad to see the end of the 1970s. Serious inflation and rising unemployment had been a drain on the economy, which although it had grown, had done so far more slowly than in the past.

On the economy, which although it had grown, had done so far more slowly than in the past.

The Hon. W.R. Bennett, premier of B.C. (left) attends.

William B. Waite, the company’s first Canadian CEO and president, in 1981.

William B. Waite was born on December 12, 1937 in Brantford, Ontario. He attended the University of Western Ontario, where he received a Bachelor of Arts degree and a Bachelor of Engineering degree in electrical engineering in 1959. He then worked with the National Research Council in Ottawa before beginning to return to normal levels. That consistency, combined with concerted efforts at SELL to reduce costs, favour salaries, and streamline operations, ensured that the company survived the recession quite comfortably. No single sale was responsible for this remarkable performance, but a number of innovative, high-profile projects and services contracts kept SELL busy during these difficult times. For example, the Medicaid Division, which had garnered a considerable share of the radiological imaging market, was awarded a $5.9 million contract in June 1982 to supply Victoria General Hospital in British Columbia with a fully electronic digital X-ray system. The first in its kind in Canada, the suite of X-ray, nuclear medicine, and ultrasound equipment allowed X-ray images to be digitally enhanced, and stored, all without the use of traditional film. The goal was to eventually eliminate the countless conventional X-ray films, folders, cabinets, and darkrooms that had traditionally been needed for radiological imaging, saving the hospital money and space.

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Of all the projects undertaken by SELL in the first half of the 1980s, none was larger or more ambitious than the Bowmanville Switchgear Station at the Darlington Nuclear Generating Station. Located on the north shore of Lake Ontario, east of Toronto, the Darlington station was approved in 1977 and built between 1981 and 1993 by Ontario Hydro. Producing 3512 MW, it was one of the largest single-unit power plants in the world and to the client’s complete satisfaction. The Siemens project was completed on time and to budget. It was notorious for its massive cost overruns, but due to exceptional workmanship and the application of state-of-the-art technology—it occupied roughly one-tenth the space used by traditional switchgear installations—and contained some 18 circuit breakers, over 2.5 km of SF6 bus duct that would occupy roughly one-fifth the space used by traditional switchgear installations and providing some 18 circuit breakers, over 2.5 km of SF6 bus duct that would occupy roughly one-fifth the space used by traditional switchgear installations. While Siemens Electric Limited (SELL) was filling orders and completing contracts during the early part of the 1980s, it was also continuing the careful diversification and expansion that had begun with Dr. Hettler. Waite characterized as “a major thrust forward in [SELL’s] continuous endeavors to grow, create employment, and strengthen our position in the Canadian market...” The acquisition, which William B. Waite characterized as “a major thrust forward in [SELL’s] continuous endeavors to grow, create employment, and strengthen our position in the Canadian market...” the centre of the SELL involvement, however, was the Siemens switchgear building within the Bowmanville Station. This SF6 site used the latest in switchgear technology—it occupied roughly one-tenth the space used by traditional switchgear installations—and contained some 18 circuit breakers, over 2.5 km of SF6 bus duct that would occupy roughly one-fifth the space used by traditional switchgear installations. While Siemens Electric Limited (SELL) was filling orders and completing contracts during the early part of the 1980s, it was also continuing the careful diversification and expansion that had begun with Dr. Hettler.
by the early 1990s, growing business volume and expansion in staff and services led SELL to open new, larger offices. In this photo, William Waite (right), Siemens Canada’s first Canadian-born president and CEO, is pictured with Mississauga mayor Hazel McCallion. Peter van Siemens (center from left), and the late Gordon Walker, minister of trade for Ontario (left), during the ribbon-cutting ceremony at the Courtney Park Drive building in June 1983. In 2012, McCallion, 91, who was first elected to office in 1978, was still in office and was the city’s longest-serving mayor.

SELL’s rapid expansion also included the construction of additional buildings for its growing workforce. With $30 million in sales, Toronto was the most important single market for SELL, and in 1983, a new office was completed in Mississauga to accommodate new staff and services in the area. When the building, located at 1140 Courtney Park Drive, was inaugurated in June of that year, it was a significant event.

The mayor of Mississauga, Hazel McCallion, officially cut the ribbon on the new building (the first of several buildings that would be built on Siemens buildings), and the crowd was filled with new staff and services led SELL to open new, larger offices. In this photo, William Waite (right), Siemens Canada’s first Canadian-born president and CEO, is pictured with Mississauga mayor Hazel McCallion. Peter van Siemens (center from left), and the late Gordon Walker, minister of trade for Ontario (left), during the ribbon-cutting ceremony at the Courtney Park Drive building in June 1983. In 2012, McCallion, 91, who was first elected to office in 1978, was still in office and was the city’s longest-serving mayor.

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Finally, later that same year, SELL also acquired the Scientific Electronic Laboratories (SELL) of Siemens Canada in the early part of 1981. 1995 2012

In the span of 10 years, Siemens employees have advanced from type writers like this Remington portable—the typewriter of its day—to IBM Semi Electric typewriters, and finally, to the typewriter era where laptops are standard equipment.

The rapid expansion and growth of SELL during the 1980s resulted in significant changes for its employees. There were new co-workers, new offices, and, perhaps most noticeable, new opportunities for anyone who wanted to take them. “It was a fantastic time,” says Peter van Siemens, who was working in the IT department at SELL during the early 1980s. “There were all kinds of opportunities, I’d build it into a well-run department, create a department and staff it, and then I said, ‘Time, but I’m bored. What’s next?’ At that time, I could always move on to the next challenge.”

While the composition of Siemens Canada changed rapidly, its identity also began to solidify, becoming more noticeably Canadian. In the past, Bruno Schwarz explains, you always knew that Siemens Canada and Siemens Electric “were part of a German company; Siemens is tech-driven, and the technology came from Germany.” The growing Canadian infrastructure and new acquisitions of SELL, however, were helping it solidify its own identity. In Western Canada, Gent Research, who spent 37 years with the Industrial System Division in Edmonton, notes that, “the company started to be more closely tied to the United States, especially after the acquisition of Allis-Chalmers.” This did not mean that Siemens Canada was losing sight of its roots, merely that it became a staple with employees at Siemens Canada in the early part of 1981. 1995 2012

Throughout the company’s history, employees have always moved on to the next challenge.”

While the composition of Siemens Canada changed rapidly, its identity also began to solidify, becoming more noticeably Canadian. In the past, Bruno Schwarz explains, you always knew that Siemens Canada and Siemens Electric “were part of a German company; Siemens is tech-driven, and the technology came from Germany.” The growing Canadian infrastructure and new acquisitions of SELL, however, were helping it solidify its own identity. In Western Canada, Gent Research, who spent 37 years with the Industrial System Division in Edmonton, notes that, “the company started to be more closely tied to the United States, especially after the acquisition of Allis-Chalmers.” This did not mean that Siemens Canada was losing sight of its roots, merely that it was continuing to build its own identity as a Canadian company. It was not always easy—Austin recalls.

In the span of 10 years, Siemens employees have advanced from type writers like this Remington portable—the typewriter of its day—to IBM Semi Electric typewriters, and finally, to the typewriter era where laptops are standard equipment.

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In 1987, Siemens Electric Limited (SELL) celebrated the 75th anniversary of Siemens in Canada. William B. Waite, an avid historian of all things relating to Siemens Canada, instigated a research project to produce a book celebrating the occasion. There was ample reason for celebration: with the recession now over, the Canadian economy was beginning to improve, and SELL was reaching new heights in market share and business volume. Annual sales had reached nearly $200 million, and the company now employed more than 1000 employees from coast to coast. Siemens Canada had certainly come a long way and accomplished a great deal in its 75 years, as a company publication celebrating the anniversary claims, the company had become part of Canada, not just the Canadian “outdoor forests… mountain peaks by glaciers and lakes with hidden lakes,” but the “expanding industrial Canada…a market that is open to new and progressive technology.”

As the 1980s drew to a close, SELL continued to bring more of that “new and progressive technology” to the Canadian market. Combining traditional German quality and innovation with Canadian skill and determination, SELL helped Siemens AG further its “bridgehead” strategy for the North American market, introducing select European technology into the United States through Canadian operations. Products such as 575 V AC drives, fractional horsepower electric motors for automotive use, and configurable power supplies were produced in Canadian factories and shipped south. By 1991, for the first time, the 15 manufacturing facilities in Ontario were sending 87 per cent of their shipments to other countries, primarily the United States.

As Siemens Canada grew, so did the company’s product line. Process control equipment, telecommunication products, and medical technology. Siemens Canada had become part of the Siemens Group, a large multinational company. In 1988, Siemens Canada produced a book celebrating its 75th anniversary. The book included pictures and stories from the company’s past, highlighting its accomplishments and growth. The book was a testament to Siemens Canada’s commitment to innovation and excellence.

In 1987, SELL launched a new group: Siemens Canada Airport Technology. Headed by Fred Rang, a Siemens employee since 1965 and an air pilot, the Airport Technology group provided products like runway lighting and guidance sign systems to airports throughout the country. They were an instant success. “We were profiled from day one and never relied on head office subsidies,” Rang notes. The key, he suggests, was North American customer service. “We didn’t have answering machines,” he says. “Every call was answered by a knowledgeable person who provided consistent improvement of the OSRAM HMI and XBO products were an integral part of Canadian lives. In 1987, Siemens developed the OSRAM SYLVANIA Canadian and U.S. Display Optic team shared in the honours. Siemens cars used in Calgary and Edmonton. After running in Germany until 1975, it was sold to the B.C. government to be used as a demonstration car for a light rail system that was being proposed for Vancouver at that time. Ultimately, the ‘SkyTrain technology’ was chosen and the car was unused, sitting in its shipping crate for nearly 12 years. In 1987, it was purchased by the Edmonton Radial Railway Society and run briefly at Fort Edmonton Park in 1989. After being extensively restored, the car is now in pristine condition and has been used during peak tourist periods on the high level Bridge Streetcar line since 2005. Some tourists comment that the very modern-looking car is “not old enough” to be kept with the other treasures of the Edmonton Radial Railway Society, but Tony Kewen, one of the society’s founders, is quick to correct them. “I tell them it’s four decades old,” he says, “and although it looks new, it’s unique—the only one ever built in the world, and we have it.”

Siemens Car 601 in service with the Edmonton Radial Railway Society
TORONTO SKYDOME.

In November 1982, the Canadian Football League’s (CFL) Grey Cup championship game was held at Exhibition Stadium in Toronto. The game was played by dreary weather, and the crowd, unable to find cover in the open-air stadium, was left drenched and cold. The following day, tens of thousands of people rallied outside Toronto City Hall, chanting, “We want a dome! We want a dome!” Soon after, discussions began about the feasibility of building a domed stadium in Toronto.

A variety of projects were discussed over the following years, but ultimately a submission from architect Rob Roboloke and structural engineer Michael Allen was chosen. Located at the base of the CN Tower, not far from Union Station, the new stadium featured a retractable roof, the first of its kind in the world.

The following years, but ultimately a submission from architect Rob Roboloke and structural engineer Michael Allen was chosen. Located at the base of the CN Tower, not far from Union Station, the new stadium featured a retractable roof, the first of its kind in the world.

To move that 8500 tonne roof, a computerized roof system was designed, built, and commissioned by SELL. Living Siemens electric drives and controllers, the system ensured that when the roof opened for the first time on June 3, 1989 (ironically, to rain that doused the spectators), that it did so without any problems. SELL also provided the stadium’s electrical power distribution and control system. Renamed “Rogers Centre,” the stadium is a sporting and cultural fixture in Toronto, and home to Major League Baseball’s Blue Jays and the Toronto Argonauts of the CFL. Perhaps the most famous moment in its history was Joe Carter’s game-winning home run in Game 6 of the 1993 World Series.

Below left: Toronto’s Skydome, illuminated by lighting from OSRAM SYLVANIA. Below right: With Siemens technology, Toronto’s Rogers Centre, formerly known as SkyDome, was a breath-taking technological achievement when completed in 1989.

Below: “Inside Toronto’s Skydome, illuminated by lighting from OSRAM SYLVANIA.”
Herman “Jackrabbit” Smith-Johannsen

Considered one of the world’s ski pioneers, Herman Smith-Johannsen was the father of recreational cross-country skiing in North America. Born in Norway in 1875, Johannsen travelled to Germany after completing his military training. There he received an engineering degree and went to work for Siemens & Halske in the Charlottenburg facility. In 1907, he immigrated to the United States, where he was given the name of “Jackrabbit” by the Cree First Nation people near North Bay because of his impressive speed on skis (they were using snowshoes at the time).

For much of the 20th century, Johannsen worked to popularize cross-country skiing in North America, building ski jumps (including the jump at the 1932 Lake Placid Winter Olympics) and blazing trails throughout Ontario and Quebec. As a result of this work, he was appointed a Member of the Order of Canada in 1972, received the Norwegian Medal of St. Olaf, and is commonly called “the Father of Skiing” in Canada.

In 1986, at the age of 111, Johannsen travelled to Norway for the 100th anniversary of his military unit and to Berlin, where he had once worked for Siemens. At the time, he was the oldest Siemens employee in the world; his grandson, Peter Austin, was also a Siemens employee, at various points in his career serving as the head of the Siemens corporate network in Munich and the vice president of Siemens Nixdorf Information Systems Division in Canada.

“Jackrabbit” Smith-Johannsen died in 1987 in Norway and was posthumously recognized as being the oldest living man in the world during the last month of his life.

Employee card for Peter Austin, grandson of Herman “Jackrabbit” Smith-Johannsen

INNOVATION AT HOME

While new acquisitions bolstered the constantly expanding line of products offered by Siemens Electric Limited (SELL) in the early part of the 1990s, its existing sectors continued to explore new opportunities. Increasingly, this meant participating in larger, more complex projects.

Siemens Marine, for example, which had helped to outfit more than 200 Canadian vessels by this time, was involved in the lengthy and complex mid-life modernization of the Canadian Coast Guard’s flagship icebreaker, the Louis S. St. Laurent. SELL’s Automotive Division, an important part of the company’s success, continued to produce important components such as electric motors, fans, and control systems for the automotive industry. Manufactured in state-of-the-art plants in London, Chatham, Tilbury, and Windsor that employed nearly 2000 workers, these products accounted for nearly one-half of SELL’s annual sales. Later, the Windsor facility would manufacture an important new product: a one-piece, thermoplastic intake manifold for the Dodge and Plymouth Neons, the first of its kind in the North American automobile industry.

Siemens 1-megabit DRAM memory chip, produced in series from 1988 onward, could store the text of 64 typewritten pages, a major step forward at the time.
Launched in 1969 in Montreal, the CCGS Louis S. St-Laurent is a heavy Arctic icebreaker and the largest ship of the Canadian Coast Guard. Named after the twelfth prime minister of Canada, the CCGS Louis S. St-Laurent had a long and successful start to her career, including her involvement in the recovery of the Weather Station Kurt on the coast of Labrador in 1981 (see page 61). By the late 1980s, however, the CCGS Louis S. St-Laurent was ready to be modernized, a process that would update and improve most of her systems.

For five years (1988–1993), the CCGS Louis S. St-Laurent underwent modernization at the Halifax Shipyard. Her hull was lengthened and her original, inefficient steam turbine propulsion was replaced with a diesel electric system. Five massive 8000 hp Krupp MaK diesel engines drove Siemens electric generators to provide power for the entire ship. Producing 6400 kVA each, the Siemens generators were responsible not only for powering the three 9000 hp drives that drove the vessel’s three shafts and propellers, but also for providing power to the 460 V network that was the basis of day-to-day operations on the ship. Three Siemens auxiliary generators, each capable of providing 1100 kVA, ensured that the CCGS Louis S. St-Laurent would always have power, no matter what befell her.

On their own, the size and power of the generators is remarkable, but they are especially notable for their control: Siemens systems allowed the generators to direct their power to any of the propeller shafts, giving the CCGS Louis S. St-Laurent enormous flexibility in how she directed her 27,000 total hp. The engines were even monitored by Siemens equipment, ensuring that they were operating at peak efficiency whenever possible.

While the new engines and generators provided the CCGS Louis S. St-Laurent with significant improvement in her braking and reversing capability (important considerations for the sort of icebreaking and escort work that she performed), studies of propulsion data following the modernization revealed that the system was not operating at maximum efficiency. The new equipment was not interfacing effectively with the original telegraph consoles, resulting in a delay in the response of her propeller shafts.

SELS was contacted in 1994 to provide a solution to this problem. After consultation with the engineering crew of the CCGS Louis S. St-Laurent and staff of Krupp MaK, a new engine telegraphy (control) system was devised that would minimize downtime in the engine when changes were requested. Siemens changed the electrical control software by providing three SIMADYN D control systems to manage the torque on the propeller shafts, allowing the engine to respond more quickly without damaging either the engines or the shafts. The control systems were also capable of operating independently (or in a pair) in case of damage to one of the others.

By the time the project was completed, propulsion response time was reduced by 65 per cent and, just as importantly, the downtime for the vessel was minimal. Since then, the CCGS Louis S. St-Laurent has continued to support sealifts and scientific expeditions throughout the Arctic.
By 1994, the latest Canadian recession had ended and every part of SEL was showing significant growth and constant activity. Looking back at the company publications from this time, one can see the roots of many of Siemens Canada’s current line of products. Responding to the growing desire for clean energy, SEL was beginning to promote products such as solar cell production, wind energy research, and water-treatment systems. While they may not have been popular or widely available at the time, these products do hint at the future involvement of Siemens Canada in such important “green” technology. Similarly, while the Medical Division of SEL continued to offer traditional favourites such as X-rays and electronic technology, similarly while the Medical Division of SEL continued to offer traditional favourites such as X-rays and electronic technology, they may not have been popular or widely available at the time, these products did hint at the future involvement of Siemens Canada in such important “green” technology. While they may not have been popular or widely available at the time, these products do hint at the future involvement of Siemens Canada in such important “green” technology. Similarly, while the Medical Division of SEL continued to offer traditional favourites such as X-rays and electronic technology, they may not have been popular or widely available at the time, these products do hint at the future involvement of Siemens Canada in such important “green” technology.

INVESTING IN PEOPLE AND THE ENVIRONMENT

In total, more than 1000 employees participated in programs to upgrade their professional and personal skills. SEL also embarked on a program to improve the working conditions of its employees and to reduce the company’s environmental footprint. The automated metal plating production line in Drummondville, for instance, had installed a cutting-edge water treatment system that ensured waste water was treated above government standards before it left the facilities. To this day, Drummondville has a reputation for cleanliness and efficiency among both its employees and customers. Similarly, the LaSalle plant, where thousands of parts and components were trained and painted, had a special vacuum system that removed fumes and particles from the environment to improve working conditions for the employees. A national paper recycling system saved more than 141 tonnes of paper and SEL worked to integrate sensitivity to the environment into its decision-making process.

While SEL was enjoying this period of incredible expansion and success, it also continued to ensure that its employees received significant training in not only technical and commercial programs, but also management techniques, computer skills, foreign languages, and even stress management.

The workforce also grew substantially, reaching nearly 4000 by 1994. SEL’s parent company, Siemens AG, enjoyed a similar period of growth, employing an incredible 400,000 employees by the mid-1990s.

BC FERRIES S-CLASS “SUPER FERRY”

BC Ferries’ S-Class ferries were the model was popularly known, were built by the Spirit of British Columbia, which was launched in 1999, and the Spirit of Vancouver Island, launched in 1994. Built in shipyards in North Vancouver and Victoria, the S-Class ferries measured 167 metres long and could carry 2100 passengers and 470 autos when full, making them the largest ferries on Canada’s West Coast. Siemens Canada’s Marine Division supplied the integrated electrical and automation systems for the 17,352 hp vessels, including a propulsion system, three generators, a main switchboard, an entire automation package for each of the ferries, and a new Siemens SIT-Version 2.0 alarm and monitoring system. The S-Class ferries were engineered to the highest standards before it left the transport network in Europe. For instance, the home of I-T-E Circuit Breakers before it was acquired by Siemens in 1984.

As 1994 ended and SEL prepared to mark the 120th anniversary of the founding of its company, the company could take pride in what it had accomplished in a little over a decade. An already strong company had grown stronger, establishing itself in more areas of the Canadian market. It had also achieved greater acceptance from Canadian industry for the Siemens brand, although the challenge of promoting that brand to the average Canadian remained. Still, under the guidance of William Wait, its Canadian president and CEO, SEL had managed to stay true to its remarkable pedigree, but in a way that made it distinctly Canadian.

Princess Diana visited Siemens Canada facility in London, Ontario in 1991 during a state visit to Canada with Prince Charles and their two sons, William and Harry.
After years of difficult times, of world upheaval and economic uncertainty, Siemens had established itself in the forefront of Canadian companies. It was growing rapidly in its core areas and expanding into exciting new sectors. Its workforce, always the company’s strength, was expanding, both in numbers and expertise, as Siemens Electric Limited (SELL) acquired new companies and ensured that its employees continued to receive the very best training. Even the company’s name and leadership, two facets that had been in constant flux throughout the 1960s and 1970s, had been settled for some time. Siemens Canada had finally overcome all of the challenges that faced it.

Or so it seemed. As Heraclitus, the 5th century Greek philosopher, famously once said, however, “nothing endures but change,” and starting in 1995, Siemens began to undergo its fair share of change. Much of it was by design; no company, particularly one as storied as Siemens, remains successful without constantly challenging itself, seeking out new opportunities and ways to improve. Other changes are simply part of the daily operation of a business, such as the retirement of William B. Waite, who was replaced by Albert Goller as the president and chief executive officer (CEO) of SELL, or the relocation of the company from its famous Red Barn in Pointe-Claire to a brand new building in Mississauga. Change like this is the lifeblood of a healthy, vibrant company. Other change is less desirable, and soon Siemens Canada would face several new, unwelcome challenges. An international corruption scandal rocked Siemens AG, and although Siemens Canada was not implicated, the controversy threatened the existence of Siemens itself. That was quickly followed by the global economic downturn and the worst recession in decades. As a result, Siemens was forced to reinvent itself around the world. It became a global compliance leader, establishing stringent guidelines for every aspect of the company. It also made a concerted effort to return to its roots, to the values and history that had made the company so successful in the past. As Siemens Canada celebrates its 100th anniversary, it is clear that “nothing but change endures,” but it is equally clear that the way forward for the company is the same as it always has been: a commitment to the values of pioneering tradition and innovation, and a belief that it can improve the lives of Canadians.

“We don’t want to be guided by ‘what’s usual’ but rather by ‘what’s possible.’”
– Gerd Sacke, chairman of the Siemens AG Managing Board (1968–1971)

Tradition and Innovation:
Siemens at the Beginning of the 21st Century
After more than 30 years with Siemens, William B. Waite retired in 1995. It marked the end of an era. Waite’s 14 years spent as SELL’s president and CEO was the longest period of leadership in the history of Siemens Canada.

Extraordinarily proud of being both the first Canadian-born CEO of Siemens Canada and one of the few local CEOs within the Siemens world, Waite had dedicated much of his adult life to Siemens, and he had watched the company grow over parts of four decades. He had seen its humble beginnings and the early triumphs, and he had played an important role in the company’s current success, presiding over a period of unparalleled growth and prosperity. By 1995, however, it was time to pass the torch, and Albert Goller assumed the role of SELL’s president and CEO.

In 1995, Siemens Canada won the prestigious Mississauga Urban Design Award for its new head office on Derry Road West. The facility served as Siemens Canada headquarters for nearly 15 years.

Designed by the architectural firm of Shev Tibe Imein and Partners and consulting engineers, the ECE Group Ltd., the new building was located in the heart of the Meadowvale Business Park. Ground was first broken on the project in the spring of 1994, with William Waite, the Hon. Donald Stovel MacDonald (chairman of the board for Siemens Canada), and Mississauga mayor Hazel McCallion—who had been at the inauguration of SELL’s first Mississauga office in 1983—in attendance. At the time, Waite explained that the new office would provide SELL with “ample space for future growth” and he was correct: over the next 15 years, the building was the home of Siemens Canada and a hub for colleagues from around the world.

By 2010, however, the world was well-entrenched in the deepest, most prolonged recession in decades, and Siemens Canada had embarked on an ambitious program to consolidate its real estate holdings across the country. In light of these factors, and a desire to get closer to customers, Siemens Canada decided to sell the Derry Road building and move its head office activities to 1550 Appleby Line in Burlington, where the Industry Sector was headquartered. The headquarters of Siemens Canada have remained there for the past several years, until the end of 2012, when a new office in Oakville—which will have signage along one of Canada’s busiest highways (the Queen Elizabeth Way)—will become the new home of Siemens Canada.
estate for SELL at the time and responsible for the new building, speaks proudly of the move, saying that “it is impressive to look back at each of the steps which led to the successful and relatively smooth relocation to the new building which involved moving the entire SELL Canadian network.” Located on Derry Road, the new office received a great deal of positive feedback from employees, customers, and visitors alike.

The move was the beginning of a series of changes for SELL. In 1997, the company joined Siemens operations around the world in celebrating the 150th anniversary of the founding of Siemens & Halske. The event had added significance in Canada because it also represented the 85th anniversary of the founding of Siemens of Canada. The event had added significance in Canada because it also represented the 85th anniversary of the founding of Siemens Canada Ltd. The event had added significance in Canada because it also represented the 85th anniversary of the founding of Siemens Canada Ltd. To mark the occasion, SELL revealed its new name: Siemens Canada Ltd. A return to the name that the company had used from 1968 to 1976, Siemens Canada Ltd. is the name still used by Siemens Canada to this very day.

Following the name change, the company continued to complete important acquisitions and mergers, adding a number of new companies to the fold, including AEG Sorting Systems, Parsons Turbine Generators, Landis & Staefa facility management, Cerebrus Pyrotechnics, and Westinghouse. These acquisitions led to some reorganization within Siemens Canada, and AEG Sorting Systems, which had initially been renamed Siemens Electrocom Sorting Systems after its acquisition, became known as the Production and Logistics Systems Division of Siemens Canada. Similarly, Landis & Staefa and Cerebrus Pyrotechnics, which manufactured and installed fire alarm systems, became Siemens Building Technologies. Both of the new divisions were very successful: the Production and Logistics Systems Division, which had won a Quality Supplier award from the U.S. Postal Service for four years in a row, was awarded a $3 million support contract with Canada Post, and Siemens Building Technologies received a major contract to undertake a systems integration and Y2K compliance project at the Mississauga Executive Centre.

Siemens Canada president and CEO, Albert Goller, was one of several Siemens Canada CEOs who got to know the long-serving mayor of Mississauga, Hazel McCallion. Goller would go on to become CEO of Siemens in Australia.

Above left: Setting a record: This 501G turbine was the 60th turbine produced by the Hamilton plant in 2001.
Above right: Siemens Connections brought Siemens Canada employees company news in the 1990s and into the 2000s.

Siemens Canada president and CEO, Albert Goller, was one of several Siemens Canada CEOs who got to know the long-serving mayor of Mississauga, Hazel McCallion. Goller would go on to become CEO of Siemens in Australia.
On August 20, 1998, Siemens announced the completion of its purchase of Westinghouse Power Generation. Part of the famed Westinghouse Electric Corporation established by the American inventor, George Westinghouse, who (along with Werner and William Siemens) was one of the pioneers of modern electrical engineering, the new acquisition had been operating in Canada as the Canadian Westinghouse Company since 1903. Specializing in electrical service and the manufacture of industry-leading turbines, Westinghouse Power Generation not only expanded the Siemens global power generation market share, but it also gave the company a fleet of 1900 steam and combustion turbines around the world with a combined 549,000 gigawatts of generating capacity.

In Canada, the new acquisition was renamed Siemens Westinghouse and became a part of Siemens Canada Limited in 1999. The Canadian centrepiece of the acquisition was the 51,000 square metre Westinghouse turbine manufacturing facility in Hamilton. Westinghouse has a long and proud history in Hamilton. In 1896, George Westinghouse had successfully sent his representatives to the city to negotiate the establishment of a Canadian branch of his Air Brake Manufacturing Company. Production had been carried out in a factory on Princess Street on the eastern outskirts of Hamilton until 1903, when a $250,000 factory was constructed on Milton Avenue. Since then, the facility has been a fixture in Hamilton, employing generations of Hamiltonians, often within the same family.

Over the years, the factory, which initially produced motors, generators, and other electrical devices, was expanded and modified. By the time Siemens acquired the facility in 1998, it had recently undergone a $43 million modernization to expand the facilities and to install new mills, machining centres, lathes, and other equipment. The increasing popularity and profitability of steam turbines was the reason for this modernization, and following severe power outages across the U.S. Midwest and California, orders for gas turbines soared. Sales were higher than the industry had ever seen, and the star of show was the W501 turbine, the top-of-the-line unit at the time. Originally manufactured in Florida using rotors assembled in Hamilton, W501s had been produced in their entirety at the Hamilton facility since 1996. Weighing in at a massive 140 or 242 tonnes, depending on the model, the W501 was heralded by many as the largest and most efficient 60 Hz gas turbine in the world.

In July 2011, the Milton Avenue facility closed its doors as Siemens consolidated the North American production of 60 Hz gas turbines in Charlotte, North Carolina. Many of the employees were relocated to Charlotte, but memories of the facility’s proud history of manufacturing excellence will always remain.
While these changes were occurring, Siemens Canada Ltd. continued doing what it did best: satisfying customers and participating in large, innovative projects across the country. One of the most notable of these success stories was at Charles LeMoyne Hospital in Greenfield Park, Quebec, in the city of Longueuil. In 1999, the hospital, with the help of a Siemens SIENET PACS system (a picture-archiving and communication system), transitioned from the use of film for its medical imaging to a digital format that could be sent to specialized workstations, where they were interpreted by radiologists. Once examined by specialists, these digital images could then be archived in a central server and retrieved at any workstation on any floor throughout the hospital. This meant digital images could simultaneously be in the emergency room, intensives care, or somewhere else they were required, a marked improvement over film-based images, which could only be in one place at a time. Patients received better, more efficient care, and the hospital saved time and money. According to Sylvie Gatien, the director of Charles LeMoyne Hospital at the time, the new system represented “a fundamental improvement in how we deliver imaging services throughout the hospital.”

As the century drew to a close, Siemens Canada chalked up similar “wins” across the country. Once again, the Power Generation Division (PGD) was particularly active. In the middle of 1999, it performed the primary side cleaning of four steam generators at Gentilly 2, Hydro-Québec’s Nuclear Generating Station. Specifically designed to work with the station’s Canadian CANDU reactors, the process removed 3045 kg of scales from 13,004 tubes in the facility and substantially improved the performance of the steam generators. Later the same year, PGD was awarded two major contracts in Alberta. The first, a 26 MW steam turbine generator set for the Edmonton campus of the University of Alberta, was used to supply heating steam and electricity to the university and hospital campuses. The second was a 53 MW steam turbine generator set for the Gasworks chemical plant in Medicine Hat. Worth $8.2 million, the generator used waste heat produced by the plant to supply power to local utilities.

Siemens Canada’s Airport Technology group, which began in October 1987, was a thriving business for decades. At its height in the mid-2000s, it was a $10 million per year operation, and enjoyed a 70 per cent market share. Every division had similar success stories, from Canada’s first fully integrated CAT III runway lighting at Vancouver International Airport to a $150 million contract with Delphi Thermal Systems to produce cooling and heat transfer systems for General Motors. As 1999 drew to a close, Siemens Canada enjoyed sales of $2 billion spread among its six core market segments: Healthcare, Information & Communications, Energy & Power, Industry, Transportation, and Lighting. With 6300 employees in 80 offices and 12 plants across the country, the company’s workforce had increased six-fold since its 75th anniversary in 1987, and its sales had grown by an incredible 1000 per cent during that same time. It was a remarkable period for everyone involved with Siemens Canada.
is Siemens Canada a Canadian company? With 100 years of business experience in this country and a history in Canada that can be traced back to Confederation, it seems clear that Siemens Canada is very Canadian indeed. Throughout that long history, however, Siemens has often been subject to questions about just how Canadian it is. Those questions were understandably fueled during times of war, but as a company with a famously successful German parent, Siemens Canada has been forced to work hard to emphasize its Canadian nature and prove that it is more than a company that merely operates in Canada—it is, in fact, a Canadian company.

Perhaps no one in the history of Siemens Canada has done more to promote the Canadian tenor of Siemens than William Waite. A proud Canadian, Waite worked extensively to not only document and share the history of Siemens Canada, but to increase the number of Canadians within the company, particularly management. He was always looking for Canadians who stood out. “Waite had a knack for hiring flamboyant people,” Gerd Resch recalls. “He liked people who had left a big impression on him, and he was actively trying to Canadianize management.”

Without that, he said, “Don’t ask me to get involved.”

Goller’s time in Canada, although short, was a good one for the company. “Goller brought a new era to Siemens Canada, a fresh start,” says Bruno Schwarz. “He didn’t have the political connections that Bill Waite did, but he still managed to land big contracts for the company. I guess being the head of Siemens Canada opens a few doors.” Gerd Resch agrees. “He was a consummate businessman,” he says. “A good company man.”

As the position of Siemens Canada has gradually changed, however, Canada itself has also undergone some very noticeable alterations. Over the past two decades, Western Canada has grown in importance, with industry and skilled labour flowing westward at a steady rate. Siemens Canada has had to adapt. Rob Aiello, who joined Siemens from Westinghouse in 1997 and is now regional vice president for Western Canada, says there has been “a definite difference in the importance of the West, both within Siemens and the country as a whole.” The centre of that difference, for both Canada and Siemens, has been the oil sands. “When I first came out West [in 2003], this area represented a relatively small percentage of business for Siemens. Now the Industry Sector accounts for $200 million a year.”

For 100 years, this is what it has been like working for Siemens Canada—growing with Canada, adapting as the country changes. In 1909, it was dynamic; now, it is the oil sands. Some things, however, have not changed throughout the years. At the end of the day, Aiello—like many Siemens employees before him—loves his job. “It’s been a very rewarding, fantastic ride,” he says. “I’ve been able to develop my career in a diverse company, and there have been lots of opportunities, just as important as the work are the co-workers. ‘I’ve been fortunate to work with some excellent people’ that combinations—opportunities within Siemens, stimulating work, and great co-workers—has made for ‘15 great opportunities within Siemens, stimulating work, and great co-workers’ opportunity to learn about the rich history of Siemens in Canada.

Siemens completes the first of two SIXTE-GDFSP turbines for Ontario’s Mission Hills Generating Station in September, 2008.

Amid this careful preparation, there was also a great deal to celebrate. Employees at the Pointe-Clair facility got a head start on their festivities, holding a 150th Anniversary event in early August. Featuring a countdown, balloons, and champagne (of course), the celebration was held in a specially decorated section of the production facility. The event brought together employees from many of the different groups within Siemens Canada, including several of the new divisions, such as Siemens Westinghouse and Siemens Building Technologies. Even Albert Goller, the Siemens Canada president and CEO, participated.

As the new millennium approached, newspapers and Internet sites were filled with stories about the so-called “Y2K” or “Millennium” bug. Caused by the practice of abbreviating a four-digit year to two digits, the bug was a threat to any system that used date-related processing if not corrected, and there were predictions of nuclear meltdowns, planes falling from the sky, or financial collapse. None of these events came to pass, and safely situated in the second decade of the 21st century, one can dismiss the anxiety that gripped many people as the year 2000 approached. The Y2K problem, however, was a very real worry for many businesses at the time. Like any responsible organization, Siemens Canada undertook the necessary precautions to ensure that not only were its operations ready for any potential difficulties, but so were its employees, customers, and partners. A Y2K web page was added to the Siemens Canada website to “answer questions and provide valuable information” to anyone who needed it.

2000 workers pose for this group photo to mark the opening of the new Siemens Burlington plant in August, 2010.
As oil prices climbed and the extraction of bitumen from the deposits in northern Alberta became more and more lucrative, production in the Canadian oil sands underwent an enormous boom. Siemens Canada, already a well-known participant in the oil sands, had embarked on work like its ongoing collaboration with Bucyrus, an oil-sand equipment builder. Siemens Canada’s involvement with Syncrude’s Emissions Reduction Project (SEP) began in 2005, however, that caused many of the biggest companies in the oil sands to take notice. Built to reduce emissions and costs resulting from Syncrude’s operations in the Athabasca Oil Sands, SEP used Portable Electrical Building (PEB) medium- and low-voltage switchgear, automation equipment, and other material from three different Siemens divisions: Automation & Drive, Industry Sector, and Energy Sector. In total, Siemens received $18 million worth of orders from SEP, and according to Bob Aiello, who was the general manager for Siemens at the time, the project was “the catalyst that got Siemens Canada noticed from the big companies in the oil sands. Now we get invited to deal with the who’s who in Oil and Gas every day.”

Since that time, Siemens Canada has had a growing presence in the oil sands, but its expertise is not limited to the efficient and environmentally sensitive extraction of bitumen. Once it has been recovered, the crude oil still must be transported to refineries, and Siemens Canada has been a significant participant in the creation of the infrastructure that makes that feasible. In November 2007, Siemens Canada announced it had received a $250 million contract from TransCanada Pipelines Limited to provide 39 pumping stations, 17 substations, pump skids, and a series of electrical houses to supply electrical distribution to the Keystone Pipeline Project. Beginning in the oil sands in northern Alberta, the Keystone XL segment of the pipeline, the first stage of the pipeline reach Patoka, Illinois, a distance of 2867 km, but subsequent phases would see the line eventually reach the refineries along the Gulf of Mexico. When the Keystone XL segments, as the later stages of the pipeline would be known, were announced in June 2010, Siemens Energy received a subsequent order worth more than US$150 million to supply additional pumps, electrical equipment, and pumping stations for the expansions, as well as switchgear, high-voltage substations, and system integration.

A researcher from Siemens Corporate Technology works on a new, more environmentally-friendly process for extracting bitumen from oil sands. Using induction to heat oil-bearing sands and release the valuable raw bitumen, the process already works in a lab setting (shown here). When combined with the modified drainage lines, this process could allow oil and more material to be extracted of the same amount of time (depending on reservoir conditions), while also reducing water consumption.

Siemens’ post-radiation fuel element, a fuel rod from the German nuclear power reactor. The element will be made of highly enriched uranium, which generates a high degree of heat, and highly enriched thorium, which resists neutron damage. The fuel element will be used in the reactors to generate electricity and is expected to last for the entire life of the reactor.

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The company had made a great deal of progress during the preceding decades and could justifiably look back with pride at what Siemens had accomplished in projects across the country, but it had also become a strong participant in Canadian communities, and its employ- ees were active in numerous charities and important causes. As Albert Goller suggests in a message in the final issue of Dialogue for 1999, however, it is important to never lose sight of one’s roots.

**What will ensure our success for the next 150 years?** The answer lies in the fact that no company is better than we are at continued to prosper. Siemens was fine with Siemens and a Siemens One award was one but two major distinctions for outstanding innovations and customer service: the top award in the “Customer Focus” category at the inaugural Siemens One award. The top award, which was presented at the Siemens Business Conference in Berlin, was considered the innovative nucleus of the “Profitable Growth KC (Regional Country)” category. A nation-wide project that sought to unite the sales, sales force and through the systematic application of the Siemens One principles in the creation of a three year growth plan. The result was a stunning achievement: the project resulted in average business growth of 100 percent per year between 2004 and 2006, and an increase in project and service business. A first for Siemens Canada, the top award was heralded as a major milestone for the company. “We all should take a great deal of pride in this accomplishment,” new Siemens Canada Limited president and CEO Guenter Scholz said at the time, “as it reflects our commitment to drive innovation, strengthen our customers, and enhance life in Canada.”

The Siemens One award was presented to Siemens Canada for the multi-business unit solution that it developed for the Bruce Nuclear Generating Station. One of the largest nuclear facilities in the world, the Bruce facility features eight CANDU nuclear reactors, two of which are currently being refueled. By combining the strengths of its broad portfolio of services, Siemens Canada was able to craft a proposal that matched the needs of Bruce Power, securing Siemens a contract not only to inspect and refurbish the two turbine generators within the reactors undergoing work, but also to provide lower cost life extension services, main- tain all electrical and mechanical systems in these reactors. The successful proposal also allowed Siemens Canada to establish long-term partnerships and a systematic approach (developing and following a plan) to rewarping the Canadian Siemens One organization.”

**Dialogue has published continually since November 2006.**

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**Siemens Canada team receives its ‘top award’ at the 2004 Siemens Business Conference in Berlin**

Siemens Canada CEO William Black (left) and future Siemens Canada CEO Guenter Scholz (second from left), and Siemens Canada CEO Doug Gals (second from right), in Mineral in the late 1990s.

**In February 2007, Axel Ebelke, Siemens AG president and CEO (right), visited Canada and met with Prime Minister Stephen Harper (pointing in the photo) and his delegation, Siemens Canada CEO Guenter Scholz (second from left), and Siemens Canada CEO Doug Gals (second from right).**

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**What does the ‘SG&A’ program encompass?**

**First, we have to make greater use of our material costs, for example, our expenditures on external consultation were not mere window-dressing, as chief compliance officer Andreas Pohlmann explained in 2006, “this isn’t just a new public display... We’re making every effort to ensure that compliance cases do not recur, we won’t cover up anything and will put everything out in the open.” Josef Winter, the current chief compliance officer, recently made what was at stake completely clear: “We have to make sure we don’t have another systematic fraud in our business, because if this happens again Siemens will disappear.”**

At Siemens Canada, new under the leadership of Guenter Scholz, who had replaced Dr. Martinger in 2006, this new awareness of ethical business was obvious in the response received by employees and the resulting Siemens One Award, which included sympathy cards distributed to every employee as part of Dialogue (and a Siemens One award was one but two major distinctions for outstanding innovations and customer service: the top award in the “Customer Focus” category at the inaugural Siemens One award. The top award, which was presented at the Siemens Business Conference in Berlin, was considered the innovative nucleus of the “Profitable Growth KC (Regional Country)” category. A nation-wide project that sought to unite the sales, sales force and through the systematic application of the Siemens One principles in the creation of a three year growth plan. The result was a stunning achievement: the project resulted in average business growth of 100 percent per year between 2004 and 2006, and an increase in project and service business. A first for Siemens Canada, the top award was heralded as a major milestone for the company. “We all should take a great deal of pride in this accomplishment,” new Siemens Canada Limited president and CEO Guenter Scholz said at the time, “as it reflects our commitment to drive innovation, strengthen our customers, and enhance life in Canada.”**

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As Siemens struggled to return to its roots following the international corruption scandal, the company took advantage of the opportunity to strengthen itself and address any potential weaknesses. Faced with reduced profits—although sales had grown worldwide—Siemens AG began to streamline and reorganize its operations. Beginning with its Fit4 2010 initiative, which set out steps for developing highly qualified employees, strengthening the company’s innovation leadership, and increasing focus on customers, Siemens AG also identified clear goals for growth, seeking to double the rate of sales with reduced profits—although sales had grown worldwide—Siemens AG began to streamline and reorganize its operations. Beginning with its Fit4 2010 initiative, which set out steps for developing highly qualified employees, strengthening the company’s innovation leadership, and increasing focus on customers, Siemens AG also identified clear goals for growth, seeking to double the rate of sales, general operations, and administration (the SG&A cost reduction program) in order to remain competitive. Some were concerned that Siemens Canada, which had previously been its own cluster within the global organization, would be added to another cluster. While that did recently happen when Canada was added to the North American cluster with the United States and Mexico, the resulting cluster—one of the largest in the Siemens world—speaks to the potential of Siemens Canada’s independence. All of these changes made for some hard choices throughout the Siemens world, including Canada. The workforce was reduced significantly and, in Canada, Siemens began to consolidate its real estate holdings, reducing its more than 70 locations across the country to 30. These tough decisions, however, proved to be beneficial because when the world entered an economic downturn in 2008, Siemens was well positioned to ride out the difficult times. Financial results were encouraging and a newer, leaner Siemens—both in Canada and around the world—was better positioned in the highly competitive market. As Joe Kawan, member of the managing board of Siemens AG and global E&O, explained during a town-hall meeting at Berry Road in 2009, “the global crisis has arrived at Siemens, but Siemens is not in a crisis, and that’s a very big difference.” The results are clear: Canada is supplying building automation and technology to optimize energy and operating efficiency in “The Bow,” EnCana Corporation’s new 158,000 square metre office building in downtown Calgary, and partnering with Turinna’s University Health Network in an unprecedented collaborative Magnetic Resonance Imaging (MRI) agreement that will cover seven different research specialties. In every sector, in every part of the country, Siemens Canada is providing clients with its knowledge, skill, and service. That is why Siemens Canada has not merely survived the global economic downturn, but it enjoyed a record year in 2010.

In early 2009, Guenther Scholz left his position as head of Siemens Canada and Roland Aurich took the office of president and CEO. Since then, Siemens Canada has continued to improve its efficiency and streamline its operations. Innovative projects provide Canadian customers with solutions to their unique challenges, such as the ongoing refurbishment of Units 1 and 2 at the Bruce Nuclear Generating Station, or new mail processing equipment from the Mobility Division that automates the sequencing of short- and long-hand mail in Canada Post distribution centres. Elsewhere, Siemens AG is supplying building automation and technology to optimize energy and operating efficiency in “The Bow.” In Canada, Siemens AG began to consolidate its real estate holdings, reducing its more than 70 locations across the country to 30. These tough decisions, however, proved to be beneficial because when the world entered an economic downturn in 2008, Siemens was well positioned to ride out the difficult times. Financial results were encouraging and a newer, leaner Siemens—both in Canada and around the world—was better positioned in the highly competitive market. As Joe Kawan, member of the managing board of Siemens AG and global E&O, explained during a town-hall meeting at Berry Road in 2009, “the global crisis has arrived at Siemens, but Siemens is not in a crisis, and that’s a very big difference.” The results are clear: Canada is supplying building automation and technology to optimize energy and operating efficiency in “The Bow,” EnCana Corporation’s new 158,000 square metre office building in downtown Calgary, and partnering with Turinna’s University Health Network in an unprecedented collaborative Magnetic Resonance Imaging (MRI) agreement that will cover seven different research specialties. In every sector, in every part of the country, Siemens Canada is providing clients with its knowledge, skill, and service. That is why Siemens Canada has not merely survived the global economic downturn, but it enjoyed a record year in 2010.
Soon, Siemens will also have a new Canadian home. On August 4, 2011, Siemens Canada broke ground on a new five-storey, 10,000 square metre corporate headquarters on the border between Oakville and Mississauga. Housing approximately 400 employees, this new building will unite the four sector head offices under one roof. The new building will use the latest in Siemens technology to achieve a LEED certification, and it will feature a conference area, customer engagement showroom, full cafeteria, and an extension of the innovative Siemens Office concept and flexible workspace environment, a pilot program currently in place at the Burlington, Calgary, and Montreal offices. The new building, which is set to open in 2012 at the conclusion of the 100th anniversary celebration is, in the words of Roland Aurich, “more than just an investment... it represents innovation, and innovative thinking, and our commitment to Canada, a commitment we have been making to enhance the lives of Canadians for more than a century.”

That commitment to enhancing the lives of Canadians is also visible in the new sector announced by Siemens AG in October 2011: Infrastructure and Cities. Providing customers with the company’s expertise in developing sustainable cities, this new sector will help to address the megatrends of urbanization, demographic change, and globalization and the challenges that they pose. While many may consider this to be a problem for the rest of the world, an aging infrastructure and increased urbanization are also issues for Canada. Speaking at a Siemens Canada business conference in 2011, Industry Sector head Robert Hardt explained that “sixty per cent of Canada’s infrastructure is more than 40 years old... Canada is facing a $400-billion deficit in infrastructure.” How that shortfall will be addressed, and how Canadian cities can reconcile urban growth and quality of life in a sustainable way, concerns everyone, giving the Infrastructure and Cities Sector the opportunity to improve the lives of Canadians.

It is that commitment—to bring a good corporate citizen, to the environment, to communities, and most importantly, to all Canadians—that has marked the first 100 years of Siemens Canada. Even before the Siemens Company of Canada was chartered in 1912, Siemens was working to help Canada and Canadians realize their dreams and their potential. Since then, nothing has changed. From coast to coast, Siemens Canada has remained true to its values: responsible, excellent, and innovative. Siemens Canada has seen some hard times during the past century, but it has also seen triumph and success. “Nothing endures but change,” and by embracing that—and by remembering that past and learning from it—Siemens Canada is well-prepared for the next 100 years.
Issues of work-life integration are becoming increasingly important to employees. Long commutes, heavy workloads, and increasing methods of staying connected to the office throughout the day have made it harder for many employees to balance their work responsibilities with their home life. Fortunately, advances in networking are giving employees and employers alike options for creating a flexible, effective workplace that improves both the happiness and productivity of workers.

Siemens Canada has been one of the pilots in a global concept known as “Siemens Office.” Allowing employees to work remotely through a variety of communication tools, the Siemens Office judges participants by their output, not the number of hours they work. Beginning in 2010, 300 employees in sections of the Burlington office, including the Siemens Canada head office and portions of the Industry and Energy sectors, participated in a pilot project that gave them greater flexibility in how and where they perform their work through the use of cutting-edge technology that created a truly “paperless office.”

Along with greater flexibility in how they arrange their day, employees also were given a new work environment. Gone is the traditional division of space, filled with static cubicles and offices. In the Siemens Office, employees work in a non-territorial workspace arrangement that features flexible, general-purpose seating that allows them to network and collaborate more easily and more efficiently.

In Siemens Canada’s new Montreal office, where the Siemens Office concept was fully implemented for the first time, that flexibility has been enthusiastically received. “The new way of working is all about maximizing our use of today’s latest IT tools, about flexibility and teamwork, productivity and servicing our customers better,” says Building Technologies (BT) vice president Stephane Chayer. BT branch controller Matthieu Nicolas agrees, “Our laptops are our mobile offices....It brings flexibility, autonomy, and pushes for a paperless environment.”

For Siemens Canada, that “push for a paperless environment” has been a success: a 34 per cent reduction in paper-related costs, projected real estate savings of more than $1.5 million per year, and a reduction of the company’s carbon footprint of 30 per cent (or 1600 tonnes) annually. For employees, the increased flexibility in balancing priorities has been priceless. As Richard Guttman, an associate general counsel and the lead lawyer for the Industry and Infrastructure & Cities sectors, explains, before Siemens Office, “there simply wasn’t enough time to drive home at the end of the day, pick up my son, and then drive him across town to his hockey game. Now I’m able to schedule my work week to attend most of my son’s games.” Chayer echoes Guttman’s praise, “It’s a very pleasant environment. I don’t think employees will ever want to go back to the old way of working.”

Siemens AG managing board member Peter Solmssen (third from right) helps cut the ribbon on the new Siemens Office at Siemens Canada on May 25, 2010. He is joined by (left to right) Siemens Real Estate head Harald Waitl, HR head Sean Walkinshaw, CEO Roland Aurich, CFO Manfred Doenz, and IT head Peter Gapp.

Employee Allison Guido enjoys the Front entrance at the new Montreal Facility.

The Siemens Office Concept in Canada

Employee Manon Guay enjoys the front entrance at the new Montreal facility.

Above: Richard Guttman (left) and Michael Gross, Industry Sector head, take advantage of the new Ways of Working.

Above right: Burlington employees enjoy the spaciousness of the Siemens Office concept and the collaboration it facilitates.

Right: Jesse Sayon (left) and Hang Le, shown in the Burlington office, are two of the nearly 300 employees who are now participating in the new Siemens Office concept in the Greater Toronto Area.

Below: Diane Patiess (left) and Sylvette Dallaire are pictured in a lounge area on the second floor of the new Montreal building.

Above: Richard Guttman (left) and Michael Gross, Industry Sector head, take advantage of the new Ways of Working.

Left: BT branch controller Matthieu Nicolas (left) talks with BT vice president Stephane Chayer in a small lounge area at the new Montreal facility.
Siemens has come a long way during its time in Canada. Since the first agreement between Sir William Siemens and John Livesey in 1867 and the remarkable effort of the CS Faraday to lay the first direct submarine telegraph line across the Atlantic Ocean, Siemens has continued to provide innovative solutions to the challenges faced by Canadians.

Now, after a century in business in this country, Siemens can take pride in the many important contributions that it has made to businesses, industries, and communities across Canada. It has not been an easy journey—for every peak, there has been a valley; for every triumph, a dark time—but as Siemens Canada enters its second century, it is a thriving, successful Canadian company.

This is not the end of the story of Siemens in Canada. Innovation does not stop simply because a company reaches the top. To maintain its position, an organization must continue to strive to the best. For Siemens Canada, the key to success will continue to be its values—responsible, excellent, innovative—and its ability to provide customers with the products and services that keep them competitive, productive, and satisfied.

The needs of customers and Canadians constantly change, however, and Siemens Canada must remain one step ahead. Just as Siemens once provided dynamos but can now provide a variety of power generation solutions, it will have to continue innovating, adapting to the needs of its customers and a rapidly developing planet.

The key is sustainability. As Roland Aurich, at that point the head of Siemens Canada, explained in 2011, “in today’s business environment, there is a great deal of talk about sustainability, almost to the point where the word has become a cliché. For us, sustainability is not a new or misused word or concept... our goal is to encourage more people to think about the future today, and to show them that the cost of failing to act will, in the long-run, far exceed the cost of investments in sustainable and innovative technologies required today.” In an increasingly industrialized world marked by demographic shifts, urbanization, and climate change, innovative and sustainable technology will provide the answers to some of the toughest challenges ever faced by humankind. It is never too early to start thinking about the future.

“Without the will and willingness to produce, we will not be able to master the challenges which our society has presented us.”

For Isaac Newton, the theory of gravitation was inspired by a falling apple; Archimedes conceived the principle that bears his name while taking a bath. Inspiration is not always so easy, however, and for every moment like those, there are thousands of discoveries that are the result of months or years of careful experimentation and painstaking labour. That hard work is the driving force behind innovation, and no one does research and development (R&D) better than Siemens. With more than 30,000 R&D employees working in 178 centres around the world, Siemens invests more than $5 billion a year in research and development, roughly 5 per cent of its revenue. The results speak for themselves: Siemens registered 4,952 new inventions in 2010 alone, and it currently boasts more than 57,000 active patents.

What challenges will these innovations address, and what do they mean for Canada? The world is being shaped by four megatrends: climate change, urbanization, demographic change, and globalization. These megatrends pose a host of challenges, from the conservation of scarce resources and the efficient transportation of goods, to the provision of adequate water and sustainable energy.

Canada is not immune to these challenges. When Siemens Canada was chartered federally in 1912, Canada’s population was seven million, and half of those people lived in rural areas. Today, more than 80 per cent of Canada lives in cities, and that will rise to nearly 90 per cent by 2050. The population is also “greying,” and soon Canada will consist of as many people over 60 years of age as there are under 15, a significant shift. Addressing these megatrends concerns everyone, and Siemens Canada will be at the forefront of that process, developing innovative solutions for all Canadians.

Siemens electric vehicle charging stations can be integrated into the rapidly evolving Smart Grid. Smart Grid is a concept where all the elements of an energy grid communicate and share data. Increasing traffic congestion in Canadian cites not only affects the quality of life of their residents, but also exerts a significant drag on the economy.

Canada and the rest of the world must separate economic growth from energy usage, and innovation is the best way to do that. Siemens has a comprehensive portfolio of power generation, distribution, and consumption technology that offers effective methods of reducing carbon dioxide (CO₂) emissions while still providing the energy that Canadian industry and cities need.

Canada has always been a world leader in hydroelectric and nuclear power, but wind power is becoming increasingly attractive. Efficient and reliable, wind power takes a venerable concept—the windmill—and uses it to produce electric current via a generator. Producing a yield of roughly 45 per cent (the amount of kinetic energy converted to electricity), wind turbines are a growing part of Canada’s generating capacity. Currently, the installed wind capacity in Canada is 4,088 MW, enough to power more than one million homes, and by 2020, that capacity will rise to over 15,000 MW, or 10.84 per cent of the country’s entire capacity.

Siemens Canada is at the forefront of the wind energy market in Canada. In 2008, the very first Siemens wind turbine was installed at Port Alma, near Kingston, Ontario. Part of a 44-turbine installation that had been ordered the year before, the turbine marked the beginning of a number of wind power orders for Siemens Canada. Following the Port Alma order, Siemens Canada Limited was awarded a contract to supply 86 wind turbines to the Wolfe Island wind project, near Kingston. When completed, the wind farm supplied enough clean energy to power 75,000 households a year.

Climate Change and Sustainable Energy

Likely the greatest and most demanding challenge faced by human-kind, climate change will require a host of solutions, but none of them is more important than efficient, available energy.

View of downtown Calgary. With 1.1 million people living in the metropolitan area, Calgary is the largest city in Alberta.
While wind power is the centrepiece of Siemens Canada’s renewable energy portfolio, other sustainable technologies are also being developed. At Siemens Canada’s Burlington plant, inverters for photovoltaic (PV) power are produced for customers who are investing in commercial and solar farm applications. Using DC power that is generated by the PV module, the inverters convert it to AC power, which is then transferred into the grid. Material for the PV inverters, such as cabinets, transformers, wiring, and e-houses (buildings that house electrical components) are sourced and purchased from local suppliers, making the products a domestic success story. Meanwhile, in Alberta, EPCOR Power Generation has selected Siemens Canada to build Canada’s first low-CO₂ coal-powered integrated gasification combined-cycle power plant. Featuring carbon capture and storage, the new plant will be operational in 2015 and feature a capacity of 250 MW.

Since that initial success, other large orders have followed, and in 2010, Siemens Canada announced the construction of a $20 million facility in Tillsonburg, Ontario, to manufacture wind turbine components. Located on 16 hectares, the 24,500 square metre facility is Siemens Canada’s first plant for the manufacture of wind turbine components and will produce all the wind turbine blades needed for the company’s wind projects in Ontario. More than 3000 prospective employees have submitted applications to work at the plant, which will employ up to 300 people once it reaches full production. “Our focus will be near-term, two or three years,” explains Bill Smith, senior vice president of the Energy Sector, “as...we maximize the productivity at that plant, producing world class blades at a very competitive price for our customers.”

Providing those cities with an adequate quality of life, however, is an immense challenge, and infrastructure around the world, much of it already neglected, is under increasing stress. This is also true in Canada, where the population is increasingly located in cities that have infrastructure that is decades old. If left unaddressed, these issues will have a significant effect not only on the quality of life, but also on the economy, as businesses and industries struggle to get the resources they need or to transport products to their customers.

The new Cities and Infrastructure Sector launched by Siemens in 2012 will help address that. Composed in part by the Mobility and Building Technologies Divisions, which were previously in the Industry Sector, and the Power Distribution Division, formerly of the Energy Sector, the new Infrastructure and Cities Sector will comprise nearly 1300 employees and focus on integrating technologies and providing energy efficiency solutions that are tailored to the needs of the client. These solutions might be new mail process equipment like that recently supplied by the Mobility Division to Canada Post, or the integrated building management system provided by OSRAM and the Building Technologies Division to the 2010 Platinum LEED extension of the Vancouver Convention Centre. It might even include providing Siemens light...
rail vehicles to a regional transit authority, as Siemens has done for Edmonton and Calgary as those cities expand their existing fleet of Siemens rolling stock. Providing innovative solutions for the challenges of urbanization does not end with the Infrastructure and Cities Sector; it is a holistic approach. According to Roland Aurich, Siemens President and CEO, “we have been providing proven solutions and have been working to position the company as a thought leader in this area.” Reports such as the Green City Index provide a platform for Siemens to share its expertise and help cities learn from each other in order to document the challenges faced by major Canadian cities and how they might begin to address them.

Cities are cultural and intellectual centers. They drive economic activity... Cities are ideal laboratories for innovative responses to their countries’ challenges, including environmental issues... Increasingly cities are also generating unique solutions to these challenges through effective local policies.

As its population ages, the ability of healthcare providers to deliver affordable, quality care is becoming increasingly challenged. Resources will continue to be constrained as the demand for healthcare continues to rise, forcing healthcare to become more efficient and economical.

Thanks to an extensive portfolio of advanced diagnostic imaging, diagnostic, and therapy systems, the Healthcare Sector of Siemens Canada continues to help customers in many aspects of the care spectrum. Integrated technologies, which synchronize workflows and improve collaboration across departments, hospitals, and even health systems, improve efficiency, ensuring that information reaches care teams when it is needed, and help healthcare providers make decisions faster and more effectively. Diagnostic and imaging equipment from the Healthcare Sector also help clinicians diagnose disease earlier and more accurately. The result is healthcare that simply works better.

Canada is filled with examples of these future solutions at work today. At the William Oiler Health System in Brampton and Etobicoke, one of the largest community hospitals in Ontario, nearly one million residents are cared for using

In 2011, CBC senior news correspondent Amanda Lang (left) emcees a forum on green cities with panelists (from left to right) Roland Aurich, President and CEO of Siemens Canada, Toronto Board of Trade president Richard Joy, and Tom Ang, a leader on sustainability and business from MaRS Discovery District.
Siemens technologies from all of its sectors, including medical equipment, healthcare IT systems, building automation, fire prevention, security, and communications. The Royal Columbian Hospital in New Westminster, B.C., was the first medical facility in Canada to use the SOMATOM® Definition Flash dual-source computerized tomography (CT) scanner. This innovative technology helps provide safe care to patients, exposing them to only a fraction of the radiation dose of traditional scans, by increasing the speed of the X-ray process. The SOMATOM Definition Flash is just one example of the commitment that Siemens has made to low dose radiology; Siemens Healthcare has also released a Guide to Low Dose for physicians and medical technicians, describing how dose reduction and dose control can be achieved. In fact, future radiological devices from Siemens will issue a warning message if a certain dose threshold has been exceeded. It all adds up to a strong commitment to improving the lives and health of Canadians.

A Siemens Magnetom IST Espree MRI at the Central Alberta Medical Imaging Services (CAMIS) Ltd., in Red Deer, Alberta. Backlit ceiling and wall panels display soothing images for patients undergoing an MRI. CAMIS has been providing Albertans with diagnostic imaging services for over 35 years. (Photo courtesy of CAMIS)

That is why Siemens diligently recruits the best and brightest people in Canada, and why it identifies and fosters talented individuals within its own workforce, identifying those people early in their careers who are willing and able to assume a more prominent role in the organization. Its human resources (HR) policies are carefully tailored to attracting, assessing, and developing extraordinary individuals.

Selecting the best people is only part of the process. Siemens Canada also gives its employees the training and opportunities they need to succeed. Since 2001, when the Siemens Academy of Business Excellence (SABE) graduated its first class of 23 students, Siemens has provided its employees with access to a mix of e-learning and instructor-led courses. While the SABE has now been closed, Siemens Canada employees can access the Learning Campus Siemens North America, a centralized education organization that provides material in compliance with the global learning standards established by Siemens AG in 2009. This new investment in employees is an integral part of Siemens’ success as a major global company. Only by recruiting from the many different societies that it serves can Siemens remain on the cutting edge of global competition.

In order to help Siemens grow its already diverse workforce, a Siemens Global Diversity Program promotes the “3 Cs” of diversity: composition, connection, and communication. By increasing the diverse composition of its workforce, connecting the diverse talents of its employees, and communicating the importance of diversity internally and externally, Siemens is working to harness the potential of its global employee base and build superior international teams. A Diversity Ambassadors Network, comprised of Siemens employees from around the world, helps to further the diversity goals of Siemens and to demonstrate how everyone can benefit from diversity.

Siemens has always been an international company. From its earliest days building the Indo-European Telegraph Line, Siemens has been in regular contact with many different nations, cultures, and customs. As Bruno Schwarz, a former Siemens employee, dryly puts it, “Siemens had a globalized enterprise before anyone else could spell the word!” In light of this, diversity—the creative interplay of different backgrounds, experiences, skills, and modes of thought—is an integral part of Siemens’ success as a major global company. Only by recruiting from the many different societies that it serves can Siemens remain on the cutting edge of global competition.

DIVERSITY AT SIEMENS

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Siemens has always been dedicated to improving the communities in which it works, and Siemens Canada is no different. From the gift of $50,000 made by the late Dr. Peter von Siemens, former chairman of the Board of Directors of Siemens AG, to the Faculty of Music at the University of Alberta in 1978, to the $1 million that Siemens Canada has contributed over the past 15 years to its charity of record, the Canadian Cystic Fibrosis Foundation, Siemens Canada has supported charities and programs in education, research, arts, and culture. Acting through its Siemens Caring Hands network and the sponsorship of events such as the annual Siemens Wendel Clark Charity Classic, which raises funds for SickKids Hospital in Toronto, Siemens ensures that many worthwhile causes receive support for their great work.

Siemens Caring Hands is about more than corporate action; however, it represents a culture of giving that is driven by the employees of Siemens Canada. Programs such as the Community Giving Challenge, Hope for Holidays, Earth Day, Great Strides™ Walk, and Caring Hands network and the sponsorship of events such as the annual Siemens Wendel Clark Charity Classic, which raises funds for SickKids Hospital in Toronto, Siemens ensures that many worthwhile causes receive support for their great work.

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Trench Limited: 50 Years of Proven Power

In 1962, working out of small, converted service station in downtown Toronto, Tony Trench invented the world’s first dry-type air core reactor encapsulated in epoxy-impregnated resin. Superior to existing designs because it replaced the unsatisfactory cables offered by the competition with individually insulated wire that was both stronger and more protected from the environment, this new product soon became the worldwide standard.

In the 50 years since that first breakthrough, Trench Limited has built on that early success. Its portfolio has expanded to include not only the Reactors and Line Traps that it originally offered, but also Instrument Transformers, Capacitive Voltage Transformers, and Bushings. Trench Limited has also developed and refined its existing technology to allow the reactor products to be used in new applications such as Static Var Compensation and HVAC converter stations. As a result, Trench Limited—which was acquired by Siemens in 2004—has maintained its position as an industry leader in the design and production of electrical equipment for high current and high voltage substations as well as power plants, supplying products for utility and industrial markets around the world.

Over the years, Trench Limited has celebrated some remarkable milestones. From the first 18 MVA Shunt Reactor in 1976 to the production of the first 500 kV high voltage transmission series reactors for Electronorte Brasil (which featured the highest system short circuit rating at the time) in 2002, Trench Limited has proven itself to be a world leader in reactor products to be used in new applications such as Static Var Compensation and HVAC converter stations. As a result, Trench Limited—which was acquired by Siemens in 2004—has maintained its position as an industry leader in the design and production of electrical equipment for high current and high voltage substations as well as power plants, supplying products for utility and industrial markets around the world.

The future for Trench Limited is a bright one, and in 2009, the Coil Division invested $2 million in a new wire drawing facility at Finchdene in Scarborough, Ontario. The Instrument Transformer division recently confirmed plans to build a brand new, $10 million manufacturing facility in Pickering, Ontario. This plant will house both a dedicated High Voltage Testing Laboratory capable of testing products rated up to 500 kV and a new Research and Development department designed to keep the Instrument Transformer division at the forefront of innovation within the Instrument Transformer industry sector. Scheduled to begin production before the end of 2012, this state-of-the-art facility will be a fitting tribute to Trench’s founder, who is now 82, and the company that he created that, after 50 years, is still going strong.

THE PAST AND THE FUTURE

This is the story of Siemens in Canada. From humble beginnings, Siemens has—through innovative projects, tireless determination, and years of experience in Canada—forged a place for itself within Canadian culture and industry.

There have been dark times, periods when it seemed everything that had been carefully established would be destroyed, but through the dedication of its employees and the quality of its products, Siemens has always returned, more successful than ever. Now, as it celebrates its 100th anniversary as a chartered Canadian company, Siemens Canada can say, without exaggeration, that it extends and enhances the lives of Canadians every day. From coast to coast, in communities of all sizes, Siemens Canada is providing answers to the questions asked by Canadians, solutions that are as uniquely Canadian as the challenges they address.

What will the future hold? What will be the story of Siemens Canada during the next 100 years? It is impossible to tell; those chapters of the story are yet to be written. What is certain, however, is that the next 100 years will see Siemens Canada continue to be what it has always been: responsible, excellent, innovative. Proud of its past, dedicated to its customers, and with an eye to the future, Siemens Canada will continue to author a story that spans Canada, helping the country and its people achieve their potential and realize their dreams.
Above: In early 2012, this photo by Siemens employee MacKenzie Brady from Hamilton, Ontario, captured first prize in the anniversary photo contest at Siemens Canada. Says Brady: “In celebrating the anniversary, I feel that this particular picture illustrates how we can look to an even brighter future that this company can provide for its employees and communities alike.”

Visions for the Future

Siemens technology at work in deep-sea oil extraction, 3000 metres below sea level.

A Siemens SD-160 light rail vehicle runs along 7th Avenue in Calgary.

Possible scenario for the future: Fast-charge station, recharging in record time. In the future, electric cars will be equipped with fast charge functions and integrated charging technology systems. Since these systems operate at substantially higher voltages and currents, the batteries can be rapidly recharged. Siemens researchers are currently developing a 120 kW system that recharges batteries within a few minutes, which is comparable with today’s filling stations. The system will also have communications interfaces through which the vehicle can exchange data with the energy supplier.

Conducting research on electric cars at Siemens Corporate Technology.

Mobility in the future: Siemens high-performance Cityval® is a medium-capacity fully automated system designed to improve transit flexibility, performance, and efficiency. It is optimized for sustainable infrastructure. Responding to new environmental requirements, Cityval outdoor solution minimizes noise and pollution, while also enabling a drastic reduction in energy consumption through optimized traffic management.

A model of the new Siemens headquarters in Munich, Germany, which will be one of the most energy efficient buildings in the world. The facility is currently under construction.
Our first event in Siemens Canada’s 100th anniversary year was the publication of a wall calendar, portraying milestones in the company’s historic first century. Each employee received a calendar at the end of 2011, in anticipation of the 100th anniversary year.

The calendar highlighted important dates during the year, including the nationwide anniversary celebration, on Sunday, August 7, marking the 100th anniversary since Siemens Canada was charted federally. But what distinguished this calendar were the 12 original works of art commissioned by Siemens Canada.

The paintings were done in oil on canvas, and resulted from a collaboration accomplished by distinguished Boedeker artists Pete Froggatt and Rob Niezen, both employees of Siemens Canada. The pair, who studied at the Art School of Peterborough, were selected after a call-a-

“When Rob and I agreed to work together on this project, we were very excited,” said Froggatt. “We knew it would be a big undertaking, but you couldn’t have done it without each other’s support. It was a challenging assignment. This time consuming, but it was worth it. I would get home from work and go right to my easel and pick up where I left off the night before, sometimes until the wee hours.”

Normally such original works of art would require about six weeks for just one painting of this size. “To do six in six weeks for just one painting of this size was a daunting task,” he said, “but normally such original works of art would require about six weeks for just one painting.”

For Froggatt, such an undertaking was a labour of love and a source of pride. “With over 32 years of service at the company,” said Niezen, “I find the opportunity to be involved with this significant project extremely exciting.”

Nick Soden, who had studied at Art St. Vincent in The Hague and Delft, moved to Canada from the Netherlands in 2001 and joined Siemens shortly afterward. “With over 32 years of service at the company,” said Niezen, “I find the opportunity to be involved with this significant project extremely exciting.”

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A project of this kind is a large undertaking and it would never have been completed without the assistance, advice, and patience of many people, including the meticulous work of Dr. Chris Lendrum. The paintings, which were completed over the past 100 years, including the nationwide anniversary celebration, on Sunday, August 7, marking the 100th anniversary since Siemens Canada was charted federally. But what distinguished this calendar were the 12 original works of art commissioned by Siemens Canada.

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