Addendum to Enbridge's 2013 Corporate Social Responsibility Report (with a focus on 2013 data)

Innovation Performance Data Sheet

This performance data sheet relates to the following Global Reporting Initiative (GRI G3.1) Environmental Performance Indicator:

- EN26 - Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation

Context

We continually look for innovative ways to improve our leak prevention and detection capabilities. And we invest in companies and projects with emerging technologies that will help us contribute to a cleaner energy future. Here is background on some of our investments in those two categories.

Management Approach and Background

Innovative Leak Prevention and Detection Investments

Because our core business is to safely transport liquid hydrocarbons, we continually improve the methods we use to prevent and detect leaks, and have steadily increased our investments in innovative technologies since 2010.

Following is an overview of some of the specific prevention and detection investments that our Liquids Pipelines (LP), Gas Transportation (GT), and Gas Distribution (GD)−including Enbridge Gas Distribution (EGD)−business units undertook in 2013.

Liquids Pipelines (LP)

LP focused on researching, testing and assessing the best new leak detection technologies that are commercially available. In conducting this work, one of LP's goals was to find the best possible Computational Pipeline Monitoring (CPM) systems.

CPM systems are computer-based systems that use pipeline measurements to detect the presence of leaks. So far, LP has identified and is piloting several technologies that have the potential to complement Enbridge's existing leak detection system and provide an extra layer of protection and surveillance capability. Northern Gateway Pipelines has committed to installing dual leak detection systems as a secondary safety measure and is working to find a CPM system that, when used with our existing CPM system, will give our pipeline controllers the best possible leak indicator data.

LP is also evaluating commercial technologies aimed at detecting very small leaks. For example, LP is assessing acoustic in-line inspection (ILI) tools, pressure wave systems and external sensor-based systems. LP is also exploring a promising technology that uses fibre-optic cables that serve as both a microphone that will enable us to listen for sounds produced at the onset of a leak, and as a localized temperature sensor that will enable us to detect variations in the ground temperature caused by the release of product from a pipeline.

To assess these technologies under near-real-world conditions, LP partnered with a research firm to design and build a world-class testing facility. In 2013, other pipeline operators committed to supporting this initiative.

In the area of pipeline integrity, LP developed “roadmaps” to guide its research, development and innovation investments, such that it can deliver the desired improvements in its focus areas:

- ILI technology advancement
- Inspection technology for “unpiggable” pipelines (pipelines through which we cannot run ILI tools called “pigs”)
- Integrity threat management

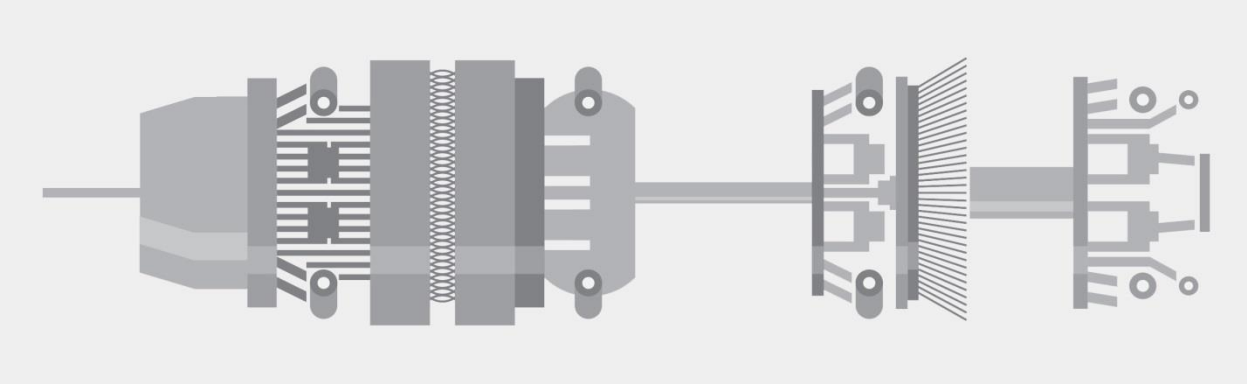
LP also developed management systems to assist with deploying technologies as they become ready for use.

In 2013, LP also explored various pipeline integrity technologies that could improve inspection techniques, including:

- Magnetic tomography, a pipeline inspection technology that LP is currently evaluating for its effectiveness in helping us screen for defects on “unpiggable” or difficult-to-inspect pipelines that we cannot inspect using ILI tools due to the pipe size and configuration. In 2013, we conducted field tests on this technology. If it passes the tests, we may use it to improve our pipeline inspections and improve our overall system reliability.

- Armadillo, an innovative technology that could help us improve the above-ground tracking of our ILI tools. We pilot tested this technology in 2013 and, if we find it effective, may use it to remotely track our ILI tools, thus reducing the number of employees needed for field inspections.

- An autonomous underwater vehicle (AUV) that we acquired in 2013 to enable us to map the bottom of pipeline water crossings. Paired with underwater sensing technology, the AUV could help us capture information about the interactions between pipelines and riverbeds, as well as profiles on waterway currents.

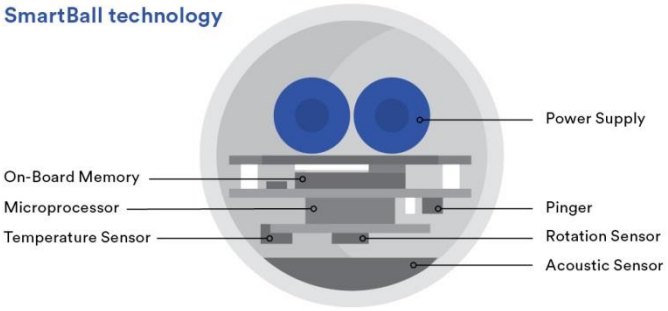


Throughout the year, we send sensitive ILI tools through our Canada-U.S. pipeline system to collect information about the condition of the pipe. In 2013, we employed the tools on 211 runs to inspect more than 33,000 kilometres—about two-thirds—of the pipeline network.

Gas Transportation (GT)

In the summer of 2012, GT was at the centre of a major field demonstration at Mineral Wells, Texas, showcasing some of the latest technology in leak detection. In addition to vendors, participants included experts from Petroleum Research Council International (PRCI), industry, GT and other Enbridge business units. Testing involved controlled, simulated gas leaks along a stretch of GT's gas transmission pipeline network. One of the vendor companies used laser technology to detect gas emissions, while another used reflected refracted sunlight, measuring changes in the quality of light to detect leaks. Yet another used a gas-sniffing device to take air samples to detect traces of gas indicating a possible leak.

In 2013, GT began exploring the application of SmartBall technology, which was originally developed as a means of finding small internal corrosion leaks in water pipes, and which may be a technology that is also applicable to LP. A SmartBall is about the size of a softball, with an instrument-filled metal core, surrounded by a protective foam shell. Inserted through a small tap into the pipeline, the ball travels through the pipeline with product flow, using an integrated computer to listen for acoustic signals of tiny leaks or structural defects. Results of the SmartBall's inspection are captured on a memory card for later retrieval and analysis.



The moment the SmartBall hears a leak, it marks the location of the leak so that analysts can later do a full physical assessment of the pipe. The technology can be easily and cost-effectively inserted and retrieved from operating pipelines. GT has already successfully deployed the technology on its liquids pipelines.

GT is also evaluating the use of small micro-sensors powered by cathodic protection—an electrochemical technique used to control pipeline corrosion. The sensors can be embedded onto the pipeline to monitor a whole suite of pipeline data in real time.

Another area of interest for GT is the emerging development of "smart liners"—high-density polyethylene (HDPE) pipe liners fitted with detection sensors. The industry is already inserting HDPE liners to create a protective barrier for metal pipe in areas of high corrosion risk. GT would use the additional detectors to track pressure, stress and pipe temperatures.

Gas Distribution (GD) and Enbridge Gas Distribution (EGD)

Systematic leak detection is a top priority for GD and EGD. Every day, GD crews scan the surface, hunting for minute signs of leaks from GD's vast underground network of pipes in an effort to identify any network deterioration.

In 2013, EGD workers conducted leak surveys on 10,269 kilometres (6,380 miles) of distribution mains in its franchise area—which equals about a quarter of its system. They also surveyed close to 448,000 "services" (gas pipes used to carry gas from the mains to customers' residences).

To conduct the surveys, EGD crews carried out foot patrols or drove vehicles equipped with special leak detection equipment. Their toolbox of hand-held survey equipment includes flame ionization, infrared optical gas detection and remote laser gas sampling devices. Many of EGD's mobile surveys employ a vehicle-mounted optical methane detection unit, which EGD helped to develop in the 1990s. Based on infrared absorption spectroscopy technology, the devices send out a light source, measuring the interaction between gas molecules and light, to detect any trace of leaking gas.

While these methods continue to provide reliable results and are currently considered industry norm or better, EGD constantly searches for new leak detection innovations that promise increased efficiency and accuracy.

In August 2012, EGD participated in a NYSEARCH-led industry evaluation and field trial of a cavity ring-down spectroscopy (CRDS) analyzer. This new technology measures the levels of methane gas in a sample based on laser light absorption, promising to be a highly sensitive and specific detection method for natural gas leaks. As a continuation of that research initiative, EGD has now procured new CRDS methane analyzers manufactured by Los Gatos Research (LGR), and is conducting field trials to determine the optimal solution for integrating this technology with our existing leak survey practices. One of the LGR analyzers has been installed in an EGD fleet van equipped with other technologies to help locate the direction and strength of a leak indication. So far, the technology's ability to detect natural gas leaks from remote distances has been successfully verified while travelling at normal speeds of vehicle traffic. Studies are ongoing to determine the detection range of this CRDS system under a variety of environmental conditions, as well as to determine when the CRDS system fails to adequately detect a leak indication. Another application for the CRDS analyzer is to identify what methane species is detected (i.e. pipeline gas versus marsh gas or other microbial methane sources). Work is ongoing on integrating the CRDS with other technologies, custom software and EGD's IT systems.

In addition to leak detection technologies, EGD has partnered with 3-GIS LLC to develop a new Leak Survey Management System (LSMS). The new system, which is slated for deployment in early 2014, will provide clearer guidance to our leak surveyors of the assets that need to be surveyed for leaks by providing detailed information and a geospatial view of the assets requiring a leak survey. The system will also enable us to more accurately measure compliance of the leak survey programs. And the system will give us a greater ability to make decisions regarding the integrity of our pipelines.

EGD is also leading the evaluation of fibre optic damage prevention technologies. In 2014, EGD will be running a pilot along a section of NPS 24 high pressure reinforcement pipeline in the Ottawa region. The project will test the capability of the system to detect and alarm from threats of manual and mechanical digging, well in advance of any damage, while keeping false alarms to a minimum. EGD has partnered with other North American utilities and energy partners on this innovative project, which will compare the capabilities of three different fibre-optic monitoring systems under identical test conditions, to determine the capabilities, strengths and weakness of each system. The goal will be to deploy the most effective system or systems to protect critical pipelines from third-party damages.

Innovative Investments in Companies and Projects

Since 2002, the value of our renewable energy assets has grown to more than $3 billion. In addition to investing in the renewable energy assets listed in the Energy and Climate Change section of our 2013 CSR Report, we have made the following investments in companies and projects that strengthen our commitment to innovation:

Company (Equity) Investments

- **Coastal Hydro Power Corporation**—Coastal Hydropower is a run-of-river hydro developer. It utilizes a Very Low Head (VLH) turbine that can be used for unconventional hydroelectric projects, including water control weirs, navigation canals, irrigation canals, dams built in small communities and municipal water intakes. With Coastal, Enbridge, in 2011, invested in the Wasdell Falls Run-of-River Hydroelectricity Project on Ontario's Severn River, located about an hour north of Toronto. The project, which is currently under construction, will generate 1.65 megawatts (MW) of hydroelectricity using highly efficient VLH turbines.

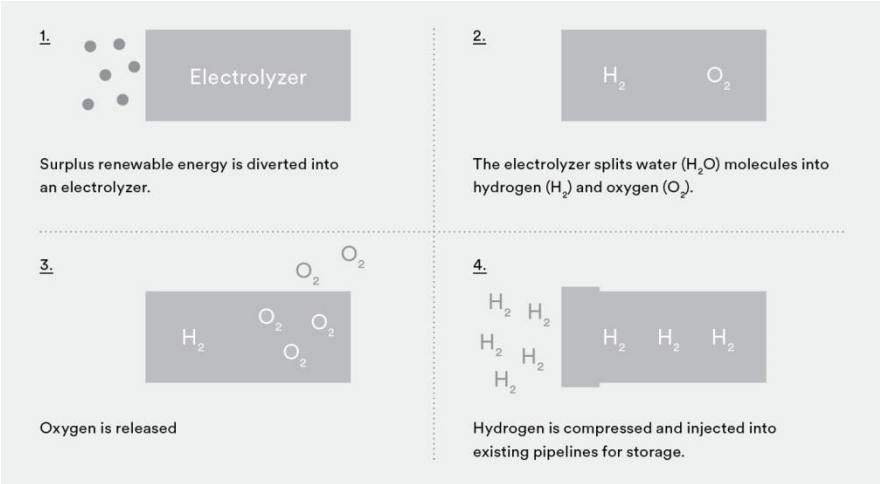
- **Genalta Power Inc.**—In 2010, Enbridge invested in Genalta Power Inc., a privately held Canadian corporation that owns and operates independent power plants that produce and sell environmentally friendly electricity generated from waste energy sources. Genalta works with site owners to provide base-load green energy; increased plant efficiencies; operating cost reductions; greenhouse credits and emissions reductions; and long-term sustainable energy. Genalta also capitalizes on opportunities in the independent power market by developing dependable, cost-effective and environmentally responsible power generation facilities.

- **Sea NG Corporation**—In 2010, Enbridge invested in Sea NG, which is developing a system to transport compressed natural gas by sea. The technology will open up new markets to transport quantities of gas that are too small to make LNG transport economically feasible. The gas will be held in purpose-built modules called Coselles (a blend of the words "coiled pipe" and "carousel") that are designed to hold large amounts of compressed natural gas. Sea NG's Coselle™ technology also has the potential to reduce GHG emissions by displacing the diesel currently used in many markets.

- **N-Solv Corporation**—Enbridge invested in N-Solv in 2001. N-Solv's Bitumen Extraction Technology process builds on the commercial success achieved by the Steam Assisted Gravity Drainage (SAGD) process. Heated solvent vapour is injected into the gravity drainage chamber of an oil sands extraction operation instead of steam, enabling the valuable components in the bitumen to be extracted while leaving problematic asphalt behind.

- **Value Creation Inc.—**In 2005, Enbridge and Value Creation announced a strategic alliance to pursue oil sands energy infrastructure development. The Value Creation Group of Companies focusses on developing oil sands processing improvements.

- **Hydrogenics Corporation**—In 2012, Enbridge entered into a partnership with Hydrogenics to develop large-scale electricity storage. Hydrogenics' water electrolysis technology can convert surplus renewable energy into hydrogen gas. These four steps illustrate the process:

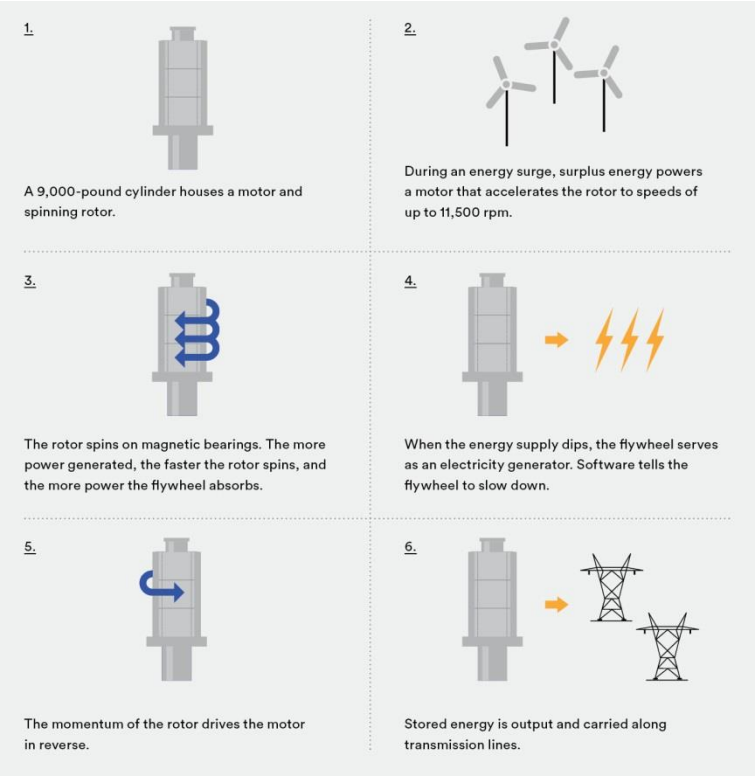


Enbridge's expertise in the ownership and operation of natural gas pipelines will enable the partnership to offer seasonal electricity storage capability to the electricity sector. The technology could be particularly advantageous in markets with large amounts of renewable energy from intermittent sources such as wind. By converting the electricity to gas and storing it in vast natural gas pipeline networks, more renewable energy can be stored for long periods, increasing the amount of clean energy that is available for consumers.

- **Morgan Solar Inc.**—In 2011, Enbridge invested in Morgan Solar, a next-generation solar technology company. Enbridge's investment is intended to help Morgan Solar commercialize a new line of concentrating photovoltaic (CPV) panels, which use plastic lenses to boost solar cells' power output. This technology provides an innovative means of generating solar power more efficiently, at less cost and with a lower environmental footprint.

- **Syscor Controls & Automation Inc.**—In 2012, Enbridge invested in Syscor, a company focused on commercializing wireless sensors for hydrocarbon storage tanks. Syscor's wireless sensors are capable of detecting temperature, pressure, inclination and vapour, thereby mitigating the risks associated with tank failures. Through our investment in Syscor, we are furthering our vision of being the safest operator of hydrocarbon facilities.

- **Temporal Power**—In 2013, Enbridge invested in Temporal Power, an Ontario-based manufacturer of electrical energy storage systems. Temporal's technology consists of spinning cylinders (flywheels) that are accelerated to a high speed by an electric motor. The spinning cylinders store the electrical energy as kinetic energy through their continuous high-speed rotation. Electricity can then be extracted when needed by using the kinetic energy to spin an electricity generator. (For more information, please see the illustration at right.) The fast-responding technology offers a cost-effective solution for utilities and power generators for balancing energy and improving power quality on the electrical grid.



- **On-Ramp Wireless Inc.**—In 2013, Enbridge invested in On-Ramp Wireless, a California-based developer of wireless solutions for energy automation and machine-to-machine (M2M) communications. On-Ramp's technology is the first purpose-built wireless network designed for connecting a large number of devices with very small data requirements. It is a powerful technology that has the potential to efficiently connect and monitor millions of unconnected sensors, meters and other industrial devices.

- **Smart Pipe Company Inc.**—In 2013, Enbridge invested in Smart Pipe, which develops, manufactures and installs high-strength, spool-able, composite high-density polyethylene (HDPE) pipe. The technology, developed by the Katy, Texas-based company, is highly applicable in difficult-to-access areas such as river crossings and urban areas, as it does not require trenching of a right-of-way. In addition, the Smart Pipe technology does not rely on the structural integrity of the carbon steel pipe through which it is pulled.

- **IntelliView Technologies Inc.** – In 2013, Enbridge invested in IntelliView, a Calgary based developer of intelligent video solutions for industrial video surveillance applications. The real-time threat detection technology is scalable and can be configured for a variety of environments, including river crossings, pump stations and perimeter security.

- **NRGreen Power Limited Partnership**—Heat is a by-product of the process used to compress natural gas so that it can be transported through pipelines for consumer use. Rather than allowing the heat exhaust to escape into the atmosphere, waste heat recovery units convert it into emissions-free electricity by using it to heat and condense fluids that drive turbines. The resulting electricity is then fed to the electricity grid.

  Enbridge's interests in waste heat recovery and power generation units are through Enbridge Income Fund, which owns 50 per cent of NRGreen Power Limited Partnership (NRGreen). Under a 20-year power agreement with SaskPower, NRGreen has constructed four waste heat power generation units along the Alliance Pipeline in Saskatchewan. These four facilities combined produce approximately 20 MW of power.

  A fifth station, which is being built at Alliance's Windfall compressor station near Whitecourt, Alberta, will deliver up to 14 MW of electricity. It was expected to be in service in the second half of 2013, but has experienced a number of construction delays. We now expect that it will be completed in the second quarter of 2014.

Project Investments

- **Aquistore**—Enbridge is a partner in Aquistore, one of the first Canadian projects to field-study the storage of carbon dioxide in a deep saline aquifer. The Saskatchewan-based project aims to prove that deep saline aquifer storage of carbon dioxide is a safe and effective solution for GHG emission reductions, and to assess the costs associated with carbon capture and storage (CCS). The results of the project will be made available to inform future CCS projects, and for government policy regulation and development.

- **Neal Hot Springs**—In late 2012, the Neal Hot Springs Geothermal Project in which Enbridge invested with U.S. Geothermal Inc., became operational. The project generates about 22 MW net of renewable geothermal electricity. The project is located in eastern Oregon, about 145 kilometres (90 miles) northwest of Boise. Geothermal energy is renewable energy from the heat of the earth's core. Subsurface hot water is brought to the surface through production wells. The heat from this water is utilized to run an organic rankine cycle power plant. The water is then re-injected below the surface, where it is reheated for future use. Geothermal is baseload power, which means that it is generated and dispatched to the grid 24 hours a day.

For More Information

Please see the Asset Integrity and Reliability performance data sheet on www.csr.enbridge.com. Please also see Enbridge's December 2013 Operational Reliability Review.