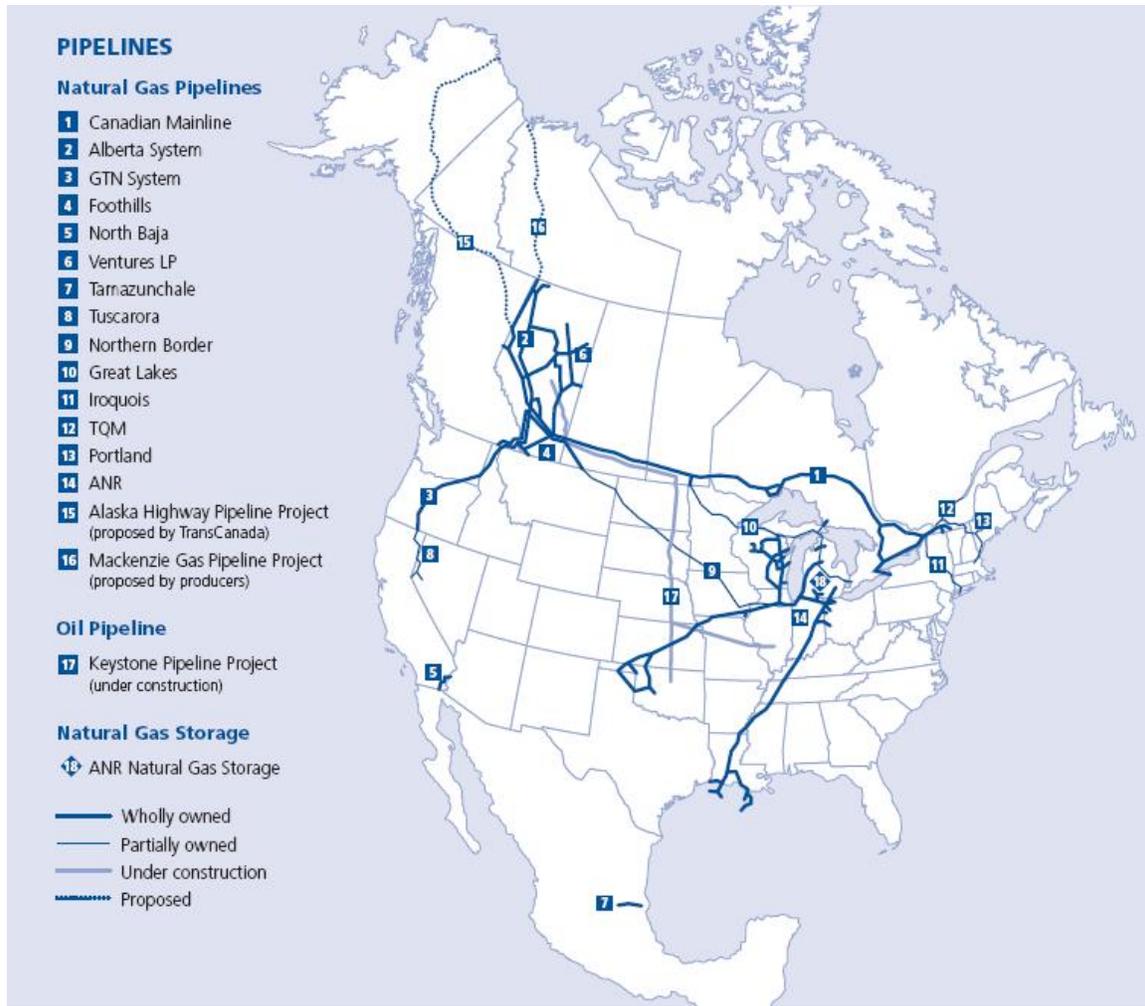


## OUR BUSINESS

TransCanada PipeLines Limited is one of North America's leading natural gas transmission companies. Our pipeline network transports the majority of western Canada's gas production to markets across the continent. TransCanada is also an emerging player in the development of major cross border oil pipeline projects.



We have focused on optimizing our pipeline network by developing new products and services, better access to markets and competitive and innovative approaches to meeting customers' needs. TransCanada's transmission network gives customers reliable access to Canadian markets and key export markets in the US Pacific Northwest, Midwest and Northeast.

The following facts and figures generally describe our natural gas transmission system and operation:

• Employees	3,600
• Total Assets	\$30.33 billion
• Net Income (from continuing operations)	\$1,223 millions
• Net Income per share (from continuing operations)	\$2.31
• Cash Flow	\$2.84 billion
• Length of 100% owned & operated pipeline system	36,500 miles
• Compression power	5,760 MW
• Measurement stations (receipt)	1,279
• Measurement stations (delivery)	1,055
• Pipe specifications	to NPS 48 & Grade 550 (X80)
• System operation	remotely controlled
• Year of initial operation	1958

Our natural gas transmission value proposition encompasses unconstrained market/supply access, offering speed, flexibility, diversity and choice to our customers. This value is reflected in a competitive cost structure and tolls, market-responsive products and services and world-class reliability. We are committed to cost reduction through efficient deployment of capital, lowest operating costs and competitive benchmarking.

In addition, we are in the execution phase of the \$5.2 billion Keystone Pipeline project, a major oil pipeline development, which is on schedule for phased completion in 2009 and 2010.

TransCanada is also an emerging player in the North American power market. Through our power business unit, including our interests in TransCanada, Power L.P., we own or are constructing approximately 10,900 MW of power.

We have participated in many business ventures with partners from our industry. Through our half-century of experience, we have built certain strengths which allow us to bring real value to our partnerships:

- On our system, we carry our projects from initial concept to full operation. Therefore, we can participate in all aspects of gas and oil transmission.
- We have knowledge and expertise gained from a continuous cycle of improvement based on learning from our operations. Our employees are skilled.

- We are at the forefront of pipeline technology. We conduct research and are leaders in technical innovation. We know how to work with industry and regulators to implement more efficient materials and processes.
- We are financially strong. We have a solid balance sheet. We have excellent corporate credit ratings. We have financed mega-projects.
- We have developed projects and operated facilities around the world. We have worked successfully within diverse organizations.
- We have a solid record in corporate citizenship. We have established, and are committed to improving, programs for protecting the environment, our employees, and people and communities affected by our business activities. We are committed to social responsibility.
- We work with governments and regulators to satisfy regulatory requirements in order to expedite our projects. We proactively build relationships to further an understanding of our role in the North American energy industry.
- We perform and rank in the top quartile of our industry as measured by independent benchmarking.

We are prominent as a pipeline project developer, builder and operator in Canada and internationally, based on sound expertise in all aspects of pipeline development – from the preliminary phase of engineering planning and the regulatory approvals process through to construction, commissioning, operation and customer service.

During the course of our fifty years of experience, we have become experts at managing and executing projects. In the 1950s, we pioneered the development of the first cross-Canada pipeline to transport western gas to eastern markets. Today, our 24,200 miles natural gas pipeline system ranks as one of the largest and most sophisticated in the world. We have also worked in joint venture teams to manage and execute numerous other projects, both in Canada and internationally. TransCanada is a successful developer of mega-projects, world class in both scale and experience. This is well-illustrated by our massive system expansion of the 1990s. Our project teams directly managed large-scale Canadian facility expansion programs with costs totaling approximately \$11.2 billion. These capital programs included nearly 6,835 miles of large-diameter pipe (NPS 30 to 48), 2,361 megawatts of compression, and 376 custody transfer meter stations. The work stretched across the continent.

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
<b>Capital Expenditures Pipelines (\$million)</b>	954	1,557	1,451	1,072	1,032	830	712	1,172	1,360	785	247	\$11,178M
<b>Pipeline Additions (miles)</b>	795	994	892	645	1,027	864	380	465	369	174	74	6,683miles
<b>Compression Additions (MW)</b>	275	166	397	197	214	186	98	383	258	177	12	2,361MW

## **OPERATIONS EXPERIENCE**

We have designed, constructed and operated pipelines in virtually every type of topography of the world. Through almost 50 years of domestic experience and approximately 20 years of international experience, we have succeeded in the discontinuous permafrost of northern Alberta, the jungles of Malaysia, the prairies of southern Saskatchewan, the mountains of Chile, and the muskeg and bedrock of northern Ontario.

As a result of this widespread experience, and including our learnings from operations, our North American pipeline network has developed into an extremely safe, reliable and cost-effective asset. We have attained this status by applying not only established industry knowledge but also some innovative processes and technology. For example:

- We have implemented reliability-based methodologies into our design;
- We use risk models to validate design criteria and to set maintenance priorities;
- We utilize GIS technology to support our engineering and operations processes;
- We have installed industry-leading high strength steels into our mainlines; and
- We have made mechanized welding the standard in large-diameter pipeline construction and we have developed and applied ultrasonic testing techniques, which support the installation of our high-grade steels.

Another specific area in which we have developed unique expertise is that of corrosion management. This allows us not only to operate safely and cost-effectively over the long term but to construct pipelines in new frontiers as well:

- We have proven experience in protecting our pipelines in areas where no commercial power is available. We operate a significant length of pipelines in such areas, particularly in northern Alberta. As a result, we have years of expertise in both the use of sacrificial anodes for transmission applications and in powering our cathodic protection systems with local, unattended sources such as thermo-electric generators;
- We are exploring new technologies, including fuel cells, to provide additional options for remote power generation; and
- We have decades of experience with the operation of pipeline coatings in cold climates and have done significant research in this area.

To ensure good management of corrosion issues, we involve our corrosion experts from the first stages of design, not just during the operations phase of a pipeline.

TransCanada owns and operates one of the largest and most sophisticated natural gas pipeline systems in the world. It collects gas from one of North America's most extensive and cost-competitive basins, the WCSB, through a network of pipelines which connects almost 1,000 receipt points. On the Alberta system we ship gas for well over 300 customers under approximately 36,000 firm and interruptible contracts. In addition to

supplying local Alberta markets, our high-capacity Canadian Mainline feeds local the major markets of eastern Canada and the northeast US. Our GTN system crossing from British Columbia into Idaho and running through Washington and Oregon to Northern California, serves the Pacific Northwest while our ANR system connects supply areas in Oklahoma and Texas with the high demand areas of the US Northeast.

We are the most operationally-efficient and cost-effective gas transmission company in North America:

- Our system is designed for remote and unmanned operation;
- We have specialized software which constantly diagnoses flow situations and watches for abnormalities;
- We maintain our system with a risk-based, quantitative process that pinpoints our areas of greatest exposure and allows us to set our maintenance priorities;
- We are one of the world's largest operators of aero-derivative turbines outside the aircraft industry;
- We generate electricity from our compressor stations, where it is efficient and cost-effective to do so; and
- We have a reputation for bringing new technology to our industry. From high-strength steels to new maintenance processes, we have a history of making new technology work.

Our operational excellence has generated important bottom-line benefits for our customers:

- Our extensive market coverage provides our customers with a wide range of business options for point of delivery of their product;
- We offer a comprehensive and flexible menu of services and pricing from dedicated capacity or occasional capacity, short-term as well as long-term services. They have options for storing their gas or changing title during shipment; and
- We operate our very secure system remotely. Our risk-based maintenance processes, unique to our industry, focus on availability and reliability. This same approach can be leveraged easily to our oil pipeline system developments.
- Independent benchmarking studies show that, in a number of key measures, TransCanada's operational performance is "Best in Class."

TransCanada's operation and maintenance activities are governed by over 650 individual procedures that promote safety, environmental protection and efficiency in the operation of the pipeline. These procedures are known as TransCanada Operating Procedures (TOPs). TOPs are developed and revised in conjunction with our pipeline and plant maintenance plans, safety and environmental protection programs, and in response to legislated requirements in all applicable regulatory jurisdictions in which we operate.

TOPs are maintained electronically and are accessible at all locations across the organization. Electronic links with our state-of-the-art computerized maintenance management system allows for efficient access to the TOPs for field technicians at the same time as they are reviewing and issuing maintenance work orders. Results and findings from the execution of maintenance tasks are captured and trigger reviews and updates to the TOPs, thus facilitating continuous improvement. Finally, a change-management program ensures that legislative amendments that may impact the TOPs are communicated, analyzed and incorporated into the TOPs when appropriate, and that staff receive timely notifications when TOPs are revised.

The TransCanada pipeline operations control system provides continuous, 24 hours/day, monitoring and control of the company's 36,500 mile network. We have developed a state-of-the-art suite of control and information management tools which directs and monitors the safe and efficient flow of gas across the continent. This package has evolved with the growth of the pipeline network over almost five decades, taking into consideration our learnings from system expansion, industry progression and customer needs.

The key services provided from the Operations Center include:

- Monitoring and control of the pipeline system and coordination of all activities on the system;
- Accurate receipt and delivery of all nominated volumes through optimum system operation; and
- A central role in emergency preparedness and response.

Overall system planning, outage coordination and general gas control support is provided by our Operations Planning group. More specifically, the following functions are carried out:

- Planning and coordination of outages from the very short term to one year into the future;
- Handling of unplanned outages;
- Simulation and hydraulic analyses of the pipeline network;
- Planning for capacity as well as the allocation of that capacity to customers; and
- Development and implementation of operating strategies.

The entire TransCanada gas transmission network is operated through a highly advanced Supervisory Control and Data Acquisition (SCADA) system. The system has a superior record of availability and, in addition, is fully backed up with a remote hot standby contingency facility. It has significant built-in excess capacity and is readily expandable without large capital investment. Numerous end devices and protocols can be supported. We offer secure, remote views of our systems and data through a variety of

telecommunications links including satellite, data radio, frame delay, dial-up and leased line. Update rates of one second can be handled.

TransCanada recognizes the rapidly changing landscape of the natural gas and pipeline transportation industry. We make ongoing efforts through training and new technologies to assist in the effective and safe operation of the pipeline.

A recent innovation that we have developed provides high-level advisory information intended to complement the SCADA system. The resulting “Advisory System” is based upon capturing a Gas Controller’s knowledge and importing it into an expert system that is integrated in real-time with SCADA. The Advisory System continually exercises this knowledge, seeking and identifying possible causes for irregular hydraulic conditions and presents its conclusions through a web-enabled user interface. In this way, Gas Control is provided with early notification of operational anomalies so that decisions can be made either to acknowledge or remedy the situation quickly.

## **RISK-BASED MAINTENANCE MANAGEMENT**

### **Integrity Management Program**

On its 36,500 mile gas pipeline system, TransCanada has an exemplary record of pipeline safety and service reliability. This is the direct result of our industry-leading *Integrity Management Program (IMP)*. This program utilizes state-of-practice advanced inspection and mitigation technologies applied within a comprehensive risk-based methodology. Risk assessment is used to identify potential integrity threats. This, in turn, initiates appropriate inspection/mitigation activities, while results from advanced inspections for known or suspected integrity threats are used to develop specific integrity maintenance activities. This approach is directly applicable to oil pipeline systems.

The overall objective of the IMP is to establish and maintain acceptable levels of integrity, having regard to:

- Safety of the public and TransCanada employees;
- Potential impact on receipt and delivery reliability;
- Potential impact on the environment;
- Public and regulatory perception;
- Protection of the installed asset base; and
- Lowest lifecycle cost.

The IMP provides the basis for developing the annual *Pipeline Maintenance Plan* and the annual *Plant Integrity Plans* (where “Plant” refers to all non-pipeline facilities). The *Pipeline Maintenance Plan* summarizes the individual programs and activities planned to manage the major pipeline hazards, and presents a five-year projection of integrity-

related activities and expenditures. The *Plant Integrity Plans* identify potential hazards and consequences with each major facility type/model utilized on TransCanada's system and analyze the risk of these hazards. Where unacceptable risk exists, projects and/or maintenance procedures are developed to mitigate the risk to acceptable levels.

### **TransCanada's Risk Management Methodology**

As mentioned above, we have adopted a risk-based approach to pipeline integrity management of our natural gas pipeline infrastructure. This same approach is directly applicable to oil pipeline systems. In this approach, both the likelihood of a failure and the potential consequences of failure are examined to determine the highest risk sections of the pipeline system. In this way, we prioritize integrity maintenance activities to the highest risk pipeline sections, thereby optimizing pipeline integrity expenditures while minimizing exposure to liability or loss.

TransCanada is concerned with managing risk from four primary pipeline integrity hazards: external corrosion; stress corrosion cracking; geotechnical loads; and mechanical damage. Consequences of pipeline failure are considered in six categories: public safety impact; customer/business impact; regulatory impact; environmental impact; public perception impact; and direct financial impact. To enable quantification and direct comparison of these very dissimilar pipeline failure consequences, we utilize an *Integrated Risk Assessment Process (IRAP)* which provides the means to combine the severity of the various pipeline consequences to obtain a single, consistent measure of consequence for any location along the pipeline system.

Through extensive research and analysis of pipeline system performance, we have developed predictive models to estimate pipeline failure frequencies for the various hazards, as well as models to predict the likely consequences of a pipeline failure. These models have been implemented within a TransCanada-proprietary software package and are linked to an extensive database where all appropriate variable inputs and pipeline operational information is stored. An important distinction of our risk assessment process is that the risk values produced are quantitative measures. This methodology will be extended to our newly developing oil pipeline system assets.

### **Defining Risk**

Broadly speaking, risk is a measure of the likelihood of incurring an undesirable loss or consequence. In the context of risk management at TransCanada, we define risk as the product of the expected frequency of an undesirable event and the sum of the probable consequences associated with the event.

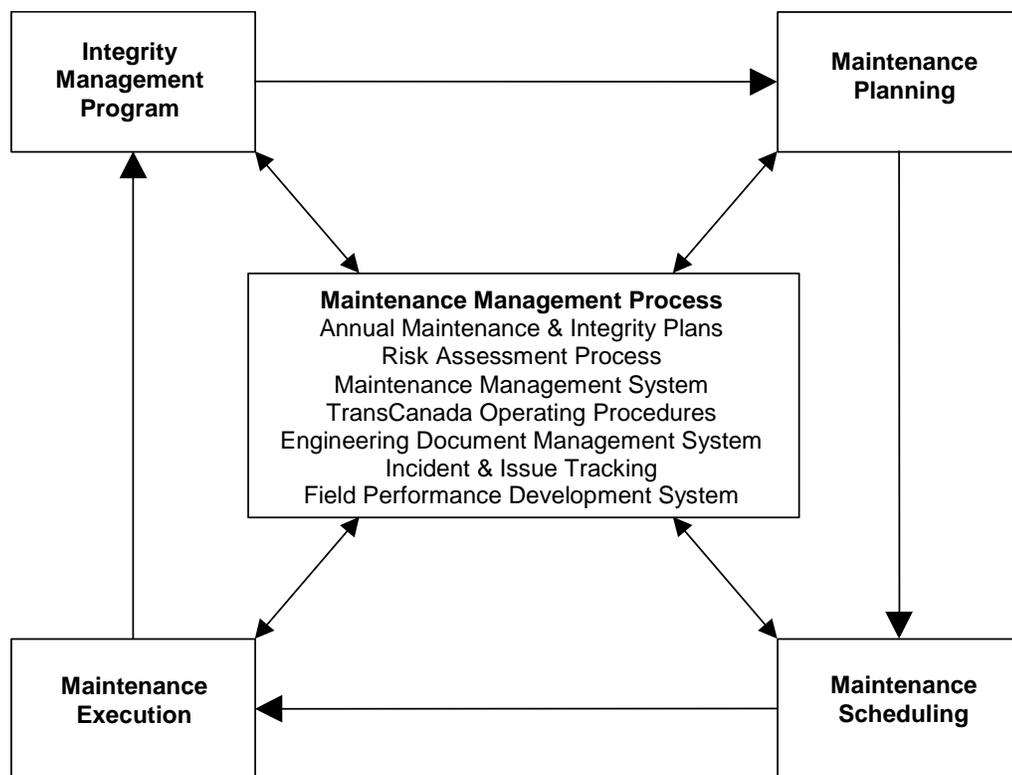
For pipeline risk management, the undesirable event is a pipeline failure (e.g., rupture or leak) and failure frequency is calculated and expressed as the number of events per year per meter of pipe. Annually, or more frequently, we analyze by computer the entire pipeline system on a meter by meter basis and the highest risk pipeline segments are determined.

Once all risk measures have been calculated, the expected risk values are checked to ensure no pipeline segments exceed any corporate risk tolerance constraints and to ensure TransCanada is in compliance with all applicable pipeline codes. Corporate constraints on safety risk, business impacts, financial exposure or total risk reflect our overall risk tolerance and our aversion to incurring certain losses. In addition to individual risk, we also evaluate societal risk to account for actual population in the vicinity of the pipeline. This measure complements the above measure by providing enhanced safety in high-consequence areas.

Our risk management methodology meets or exceeds the requirements of Code of Federal Regulations 49, Part 195, Transportation of Hazardous Liquids By Pipelines.

### The Maintenance Management Process

The IMP forms the starting point in TransCanada’s maintenance management process as illustrated in the following diagram.

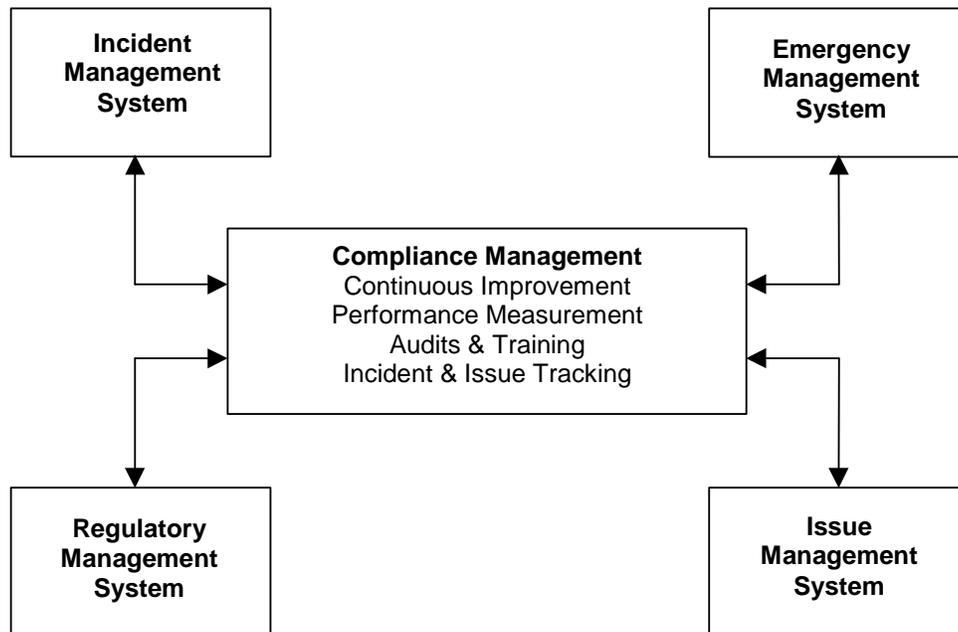


***Maintenance Management Process***

The maintenance management process provides the integrated framework for developing annual maintenance, scheduling, execution and plant integrity plans. In turn, TransCanada Operating Procedures (TOPs) are developed and revised based on these

annual pipeline and plant maintenance plans. A critical feedback loop ensures that results and findings from the execution of maintenance tasks, inspections and repairs are captured and serve as a trigger for reviewing, refining and enhancing the IMP, annual maintenance plans and TOPs.

TransCanada's compliance management systems ensure that design, construction, operation and maintenance activities at Company facilities are conducted in accordance with applicable standards, codes and legislative requirements. In addition, these systems provide systematic tools and processes for responding to and managing any incidents that occur, whether regional or corporate in nature and/or minor or emergency in magnitude, with the aim of protecting health, safety and environment, preserving system integrity and satisfying all stakeholder requirements for information, including those of our regulators. As illustrated in the diagram below, the cornerstones of our compliance management process are the *Incident Management System*, the *Emergency Management System*, the *Issue Management System* and the *Regulatory Management System*.



### ***Compliance Management System***

Each system fulfills a distinct role and purpose in managing compliance and these are described in the following sections. However, at the same time, they all share certain common characteristics as follows:

- The systems have been developed in accordance with a management system model that emphasizes the development of clear system documentation, the provision of centralized technical support and training, regular performance measurement and compliance audits, and a focus on operational excellence and continuous improvement;

- The systems are scalable, meaning that they can be integrated easily into new business ventures and environments (e.g., power);
- The systems include checks and balances with TransCanada’s legal department to ensure that system outcomes are legally consistent and appropriate; and
- The systems extensively utilize our Incident & Issue Tracking tool, which won a “Best in Class” Award from the Canadian Energy Pipeline Association (CEPA) in 2001.

### **Incident Management System**

TransCanada’s *Incident Management System* consists of integrated programs and processes including the *Incident Management Process*, *Emergency Management Program* and *Crisis Management Program*, which are designed to respond to and prevent operational or non-operational events affecting TransCanada’s operations. These programs and processes ensure appropriate and comprehensive incident responses, notification, investigation, documentation, follow-up and communication of findings, with the objectives of promoting continuous improvement and preventing recurrence of similar incidents.

Operational incidents are assessed to determine whether they represent emergency or crisis events. If the incident requires an emergency response (i.e., prompt coordination of resources, special communications, heightened lines of authority to protect health, safety, environment and company operations), then the Emergency Management Program is invoked.

Like our Incident & Issue Tracking system, our Incident Management Process won a “Best in Class” Award from CEPA in 2001.

### **Emergency Management System**

TransCanada’s *Emergency Management System* is an integrated system of procedures and plans that ensures an efficient and effective response to emergency situations at all Company natural gas transmission and power generation facilities. The *Emergency Management System* details the procedures and accountabilities associated with the activation, notification and response phases of an emergency and in addition, facilitates preparedness through the following:

- Clear guidelines and tools to assist regional personnel in developing comprehensive site-specific emergency response plans;
- Emergency readiness across the organization through frequent training exercises, regular audits and reviews of site-specific plans;
- Process link to the Incident and Issue Tracking process and basis for continuous improvement to the system; and
- Bilingual staffing and training to operate a 24-hour toll-free emergency number that can be called anywhere in North America.

We play a prominent and leading role in emergency management within the industry. We chaired the Pipeline Safety and Emergency Response Conference which was held in Calgary in the fall of 2001. We currently chair the Emergency Management Committee of CEPA. As well, we are an active member of the technical review committee for CAN/CSA Z731 (“Emergency Planning for Industry”).