

# INTEGRITY & RESPONSIBILITY

CORPORATE SOCIAL RESPONSIBILITY  
REPORT 2015



<b>ABOUT</b>	<b>01</b>
<b>MESSAGE FROM OUR CEO</b>	<b>02</b>
about this report	04
about TransCanada	09
<b>SAFETY</b>	<b>15</b>
ensuring our assets are safe and reliable	16
protecting our communities	24
health and safety	28
<b>SOCIETY</b>	<b>33</b>
responsible stakeholder relations	34
indigenous peoples	41
<b>ENVIRONMENT</b>	<b>49</b>
environment strategy	50
environmental stewardship	51
environmental protection	60
environmental performance	60
<b>ECONOMY</b>	<b>63</b>
financial performance	64
access to new markets	69
developing our people	71
<b>GOVERNANCE AND ETHICS</b>	<b>75</b>
governance	77
ethics	93
<b>FORWARD-LOOKING INFORMATION</b>	<b>101</b>
<b>TRANSCANADA MAP</b>	<b>102</b>



TransCanada employees and contractors volunteered on a reforestation project to help rebuild wildlife corridors and restore understory plant life on Nature Conservancy of Canada land in Alberta.

# LEADING THE WAY

A photograph of a person's arm and hand in a forest. The person is wearing a grey long-sleeved shirt, a blue and white work glove, and an orange safety vest with reflective yellow-green stripes. They are holding a green-handled tool, possibly a shovel or a similar implement, with both hands. The background is a dense forest of tall, thin trees with green foliage, suggesting a natural or wooded environment.

As a leading energy infrastructure company, the crux of our challenge in this changing energy landscape is to safely deliver the energy the world needs in an **economically, environmentally** and **socially responsible** manner.

**RUSS GIRLING**  
President and CEO

## ABOUT

For more than 65 years, TransCanada has delivered energy safely and reliably to meet North American demand, so we know from experience that how well we do as a company is inextricably linked to the sustainability of our business practices.

## A MESSAGE FROM OUR CEO

Energy is essential to our modern way of life. We depend on reliable access to affordable energy in our daily lives, whether it's to drive our children to school, turn on the lights at work or cook a simple meal at home.

At the same time, there is also a growing demand to transition to a lower carbon future. New climate change policies are accelerating the transition from coal to cleaner energy alternatives such as natural gas, nuclear and renewable sources.

2015 was a very challenging year for the energy industry as we faced the lowest prices for oil and natural gas that we've seen in years, due in part to the abundant new supplies of oil and natural gas available across North America.

As a leading energy infrastructure company, the crux of our challenge in this changing energy landscape is to safely deliver the energy the world needs in an economically, environmentally and socially responsible manner.

We are well positioned to successfully deliver on that challenge. For more than 65 years, TransCanada has delivered energy safely and reliably to meet North American demand, so we know from experience that how well we do as a company is inextricably linked to the sustainability of our business practices. As such, in every business decision we make, we consider the potential long-term social, environmental and economic effects.

In fact, we are already investing in a balanced and sustainable energy future.

To date, TransCanada has invested more than \$5 billion in emission-less energy sources – including nuclear, wind, hydro and solar – accounting for over one-third of the power we produce. Meanwhile, in 2015 alone, we spent over \$45 million on R&D projects across North America, setting the standard for safety and environmental innovation. We started new research projects through joint partnerships with our peers to improve industry standards on safety.

I invite you to read this CSR Report online at [csrreport.transcanada.com](http://csrreport.transcanada.com) and welcome your comments at [csr@transcanada.com](mailto:csr@transcanada.com)



We also continued to invest meaningfully in our communities, strengthened our socio-economic program and collaborated with our stakeholders to ensure they are engaged participants and long-term partners in the energy discussion. We did all this while maintaining strong financial performance, growing our business and sharing the economic success of our operations with our shareholders and the communities where we operate.

Our efforts haven't gone unnoticed.

TransCanada continued to receive third-party recognition for our accomplishments in 2015. However, we believe there is always room for improvement and constantly challenge ourselves to raise the bar on our corporate social responsibility performance.

In 2016, we will work toward core alignment with the Global Reporting Initiative G4 standard to ensure our reporting is on par with industry leaders. We continue to

increase disclosure on topics our stakeholders care about the most, such as environmental issues, pipeline safety and our relationships with Indigenous communities.

Ultimately, we will continue to work hard to preserve the integrity of the environment and sustainability of our operations on a day-to-day basis. We've been in business for generations delivering the natural gas, electricity and oil our society needs – so we understand that the long-term success of our business depends on our ability to balance safety, profitability, and social and environmental responsibility.

One of the things I enjoy the most about being Chief Executive Officer is when I receive letters from communities thanking us for our participation and support of a local initiative. It shows me that this company has heart and that we truly are part of the fabric of our communities.

While this kind of feedback is heartwarming, we also want to hear about how we can do better as a company. So we invite you, as valued stakeholders in our business and participants in the energy discussion, to get in touch with us to tell us how we're doing and how we can improve. Because what matters to you, matters to us as well.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. Girling', written in a cursive style.

**RUSS GIRLING**

President and Chief Executive Officer

## ABOUT THIS REPORT

Doing the right thing is imperative to our business.

The public is increasingly engaged in issues related to Corporate Social Responsibility (CSR) – including placing increased demand on companies to deliver on their broader social responsibilities.

While we've been producing our Corporate Social Responsibility Report since 2001, we are committed to continuous improvement in our CSR reporting and practices. As such, we continue to streamline our efforts and ensure our corporate values are embedded within the work we do every day. These efforts, our policies, and performance are summarized annually in this report.

In 2012, TransCanada defined CSR as our "commitment to operating in an economically, socially and environmentally sustainable manner, while recognizing the interests of our stakeholders." In addition, we established a CSR office tasked with raising standards on our reporting and performance. We have invested time and resources to determine the most important issues facing our company and develop more rigorous programs to track our performance, identify gaps and minimize risk.

We continue to work toward alignment with the Global Reporting Initiative (GRI) G4 standard, allowing us to set targets and measure our performance in a manner that is consistent with our industry peers as we continue our journey toward more

comprehensive reporting. The GRI serves as the de facto global standard for CSR reporting. Since 1999, GRI has provided a comprehensive Sustainability Reporting Framework that is widely used around the world, and G4 is the latest update to the framework. Now more than 80 per cent of the 250 largest companies in the world are aligning to GRI reporting standards.

In 2015, we made significant progress toward our goal of reporting to the GRI G4 standard at the Core level (see GRI Index on [www.transcanada.com](http://www.transcanada.com)). We recognize that your understanding of our corporate social responsibility practices and performance influences your level of trust in our company and in our industry. TransCanada believes that being transparent and providing accurate information on our business is critical to a balanced energy discussion.

In this report, we have enhanced our level of disclosure by including new information on topics like water use, lobbying and political contributions, leak detection, supply chain and risk management. In addition, we have reported some information in a more comprehensive way, such as our Occupational Health and Safety performance as compared against industry averages and including employee wages and benefits information in the discussion of economic value generated by our operations. Moving forward, we will continue to work toward:

- formally engaging external stakeholders on material issues assessments

## HOW THE CSR REPORT IS GOVERNED



- setting sustainability goals and targets
- gaining external assurance for our annual CSR Report
- aligning with GRI G4 Industry Specific Disclosure requirements

TransCanada is committed to doing the right thing, and our ever evolving and improving sustainability reporting provides evidence of that commitment in action.

# INVESTED IN OUR FUTURE

## 10 MATERIAL ISSUES

### SAFETY

- ensuring our assets are safe and reliable
- protecting our communities
- health and safety

### SOCIETY

- responsible stakeholder relations
- indigenous peoples

### ENVIRONMENT

- ensuring environmental stewardship, protection and performance

### ECONOMY

- financial performance
- access to new markets
- developing our people
- ethical conduct

For the sixth consecutive year, in 2016 we earned a spot on Corporate Knights' list of the Best 50 Corporate Citizens in Canada.

## MATERIALITY

In 2013, TransCanada conducted a materiality assessment to identify the economic, environmental and social issues that were most important to our stakeholders. We arrived at 10 issues we believe are the most material to our company and reported on these in our 2013 and 2014 CSR reports.

In 2015, we reassessed our 10 material issues to ensure they continue to reflect TransCanada's evolving business goals and stakeholder expectations. A group of subject matter experts evaluated each material issue in terms of broad stakeholder interest and business risk. They were then asked to prioritize the top five issues most pressing to our business and stakeholders in 2015.

The top five material issues identified through the process (in no particular order):

- Ensuring our assets are safe and reliable
- Ensuring environmental stewardship, protection and performance
- Indigenous peoples
- Responsible stakeholder relations
- Financial performance

This assessment was facilitated by a third-party consultant – the GRI Community Leader for Canada – and was informed by guidance from the GRI G4 Principles for Defining Report Content. As a result, we have strived to increase disclosure on these five material issues in this report. Our aim is that this materiality focus will result in a report that is ever more relevant and credible.

Further, this assessment also drew on a range of external sources, including:

- Environment, Social and Governance (ESG) Investor Indices reports such as Sustainalytics ESG, Vigeo, and FTSE4Good
- Peer sustainability reports
- Third-party Energy Sector Sustainability benchmarking assessments

The ability to balance safety, economic performance, and social and environmental responsibility is critical to our business. You will see we have organized our report around these topics – safety, society, environment, and economy – and have addressed all 10 of our material issues within these larger categories.

## BOUNDARIES

This report covers TransCanada and its wholly owned subsidiaries and operated entities in countries where we conduct business. We operate three lines of business – natural gas pipelines, liquids pipelines and energy. We also have a non-operational corporate segment consisting of corporate and administrative functions that provide support and governance to our operational business segments.

## MATERIALITY PROCESS



- Research and Analysis
- Workshops with Cross-Functional Teams
- One-on-One Interviews with Senior Leaders
- Top 10 Material Issues Identified
- Validate Material Issues with Stakeholders

More information is available in TransCanada's Annual Report at [www.transcanada.com](http://www.transcanada.com).

## ASSURANCE

We did not seek external assurance for the entirety of this report. When we disclose data that has gone through a form of external verification, it is noted as such in the report.

Photo at right: Since it began operation in June 2010, Keystone has safely transported more than 1.2 billion barrels of crude oil from Canada to U.S. markets, connecting through our Cushing, Oklahoma oil terminal site.



We received a Certificate of Recognition for Sustainability Leadership for social and economic initiatives from the Canadian Electricity Association in 2015.

# SUSTAINABLE OPERATIONS

## STAKEHOLDER EXPECTATIONS



## ABOUT YOU

You are the individuals, communities, organizations and groups who are potentially affected by our business – be it directly or indirectly.

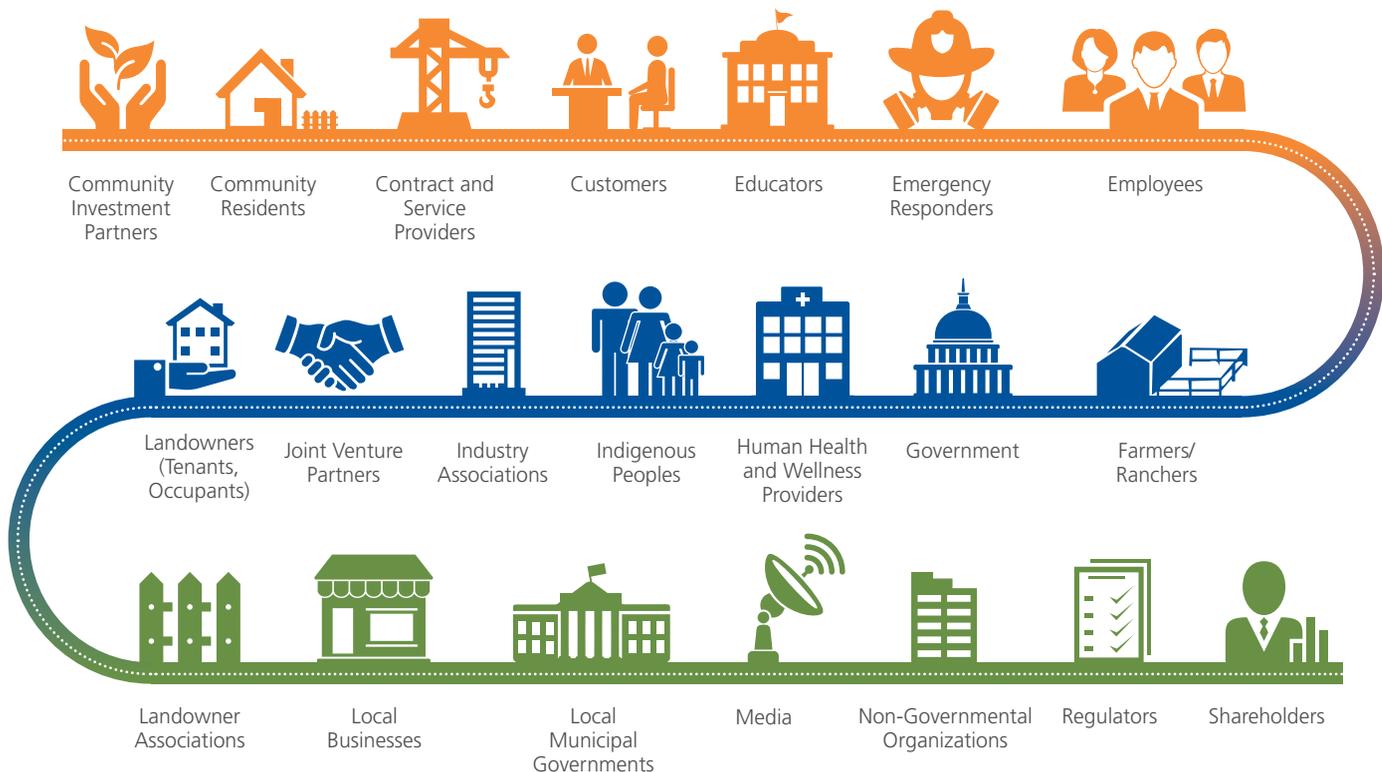
As investors, regulators, Indigenous communities, landowners, governments and other stakeholders demand ever more sustainable solutions, our CSR performance directly affects our business performance. We understand that companies with sustainable practices are the companies that are succeeding and growing their businesses.

By transparently sharing information and seeking your input in our CSR activities and reporting, we will be better equipped to make the right decisions for our business.

As stakeholders in TransCanada's business and participants in the energy discussion, we invite you to tell us what you think about our performance and our report in order to help us continuously improve.

Please email us at [csr@transcanada.com](mailto:csr@transcanada.com).

## TRANSCANADA'S STAKEHOLDERS



**“Our main intent in spending time and energy on public disclosure to trusted third-party organizations is so they can view our company objectively and evaluate our performance against our peers, identifying the areas where we may need to improve. That’s the way that we can learn and do better as a company.”**

**RUSS GIRLING**  
President and CEO

### **THIRD-PARTY RECOGNITION**

Every year we spend time and energy on public disclosure to trusted third-party organizations. A third-party validation process is very important to building trust with our stakeholders and demonstrating transparency. Our participation on indices like the Dow Jones Sustainability Index (DJSI), Corporate Knights, and CDP (formerly the Carbon Disclosure Project) are opportunities for us to evaluate our performance against our peers and identify areas we may need to improve.

In 2016, we received a gold class distinction – along with ‘Industry Leader’ and ‘Industry Mover’ awards in RobecoSAM’s globally recognized Sustainability Yearbook. We were also named to Corporate Knights’ list of Best 50 Corporate Citizens in Canada. In 2015, we achieved a score at the 100th

percentile on DJSI and rankings on DJSI’s North America and World indices. Since 2012, we’ve been among CDP’s top-scoring Canadian companies and named to the CDP’s Carbon Disclosure Leadership Index in Canada.

### **ABOUT TRANSCANADA**

For over 65 years, TransCanada has proudly operated the energy infrastructure assets that support a high standard of living for North Americans. Millions of people across North America rely on the energy we deliver every day to heat and cool their homes, cook their food, fuel their vehicles and power their businesses.

Our natural gas and liquids pipelines, power generation and gas storage facilities operate quietly, safely and reliably, while our more than 5,400 employees play an active part in the communities where they live in Canada, the U.S. and Mexico.

### **THREE COMPLEMENTARY ENERGY INFRASTRUCTURE BUSINESSES**

#### **NATURAL GAS PIPELINES**

Our 66,400-kilometre (41,300-mile) network of natural gas pipelines supplies 20 per cent of the natural gas consumed daily across North America to heat and cool homes, run industries and generate power. This pipeline network strategically connects growing supply to key markets across our three operating geographies of Canada, the U.S. and Mexico.

#### **LIQUIDS PIPELINES**

Our 4,200-kilometre (2,600-mile) Keystone Pipeline System transports approximately 20 per cent of western Canadian crude oil exports to key refineries in the U.S. Midwest and Gulf Coast, where it is converted into fuel and other useful petroleum products. Since it began operation in June 2010, Keystone has safely transported more than 1.2 billion barrels of crude oil from Canada to U.S. markets.

#### **ENERGY**

TransCanada owns or has interests in 17 power generation facilities with a capacity of 10,500 megawatts (MW) – enough to power more than 10 million homes. Over one-third of the power we provide is generated from emission-less sources including nuclear, hydro, wind and solar. We also own and operate 368 billion cubic feet of natural gas storage capacity.

More information on each of our business units – natural gas pipelines, liquids pipelines and energy – is available in TransCanada’s Management’s Discussion and Analysis (MD&A) on [www.transcanada.com](http://www.transcanada.com).

The information listed above on TransCanada’s three businesses is current as of April 1, 2016.



## QUICK FACTS

### NATURAL GAS PIPELINES

**66,400 kilometres**  
(41,300 miles)

**368 billion cubic feet**  
of gas storage capacity,  
third largest provider  
in North America



### LIQUIDS PIPELINES

**4,200 kilometres**  
(2,600 miles)

**1.2 billion barrels**  
Keystone Pipeline system has  
safely delivered more than  
1.2 billion barrels of oil



### ENERGY

**17**  
power generation facilities  
**10,500 megawatts**

### PEOPLE AND PLACES

**5,456**  
employees located across  
North America

As of April 1, 2016

## OUR MISSION, VISION AND VALUES

### OUR MISSION

To provide reliable supplies of energy across the continent – safely and responsibly. We are proud that millions of North Americans can depend on us for the energy they need.

### OUR VISION

To be the leading energy infrastructure company in North America, focusing on pipeline and power generation opportunities in regions where we have, or can develop, a significant competitive advantage.

### OUR VALUES

Values guide how we work, treat one another and operate at TransCanada every single day. Our values are integrity, responsibility, collaboration and innovation.

## RISKS AND RISK MANAGEMENT

Risk management is integral to the successful operation of our business. Our strategy is to ensure that our risks and related exposures are in line with our business objectives and risk tolerance.

We build risk assessment into our decision-making processes at all levels.

The Board of Directors' (board) governance committee oversees our risk management activities, which includes ensuring there are appropriate management systems in place to manage our risks, including adequate

board oversight of our risk management policies, programs and practices. Other board committees oversee specific types of risk: the audit committee oversees management's role in monitoring financial risk, the human resources committee oversees executive resourcing and compensation, organizational capabilities and compensation risk, and the health, safety and environment committee oversees operational, safety and environmental risk through regular reporting from management.

Our executive leadership team is accountable for developing and implementing risk management plans and actions, and effective risk management is reflected in their compensation.

Please see page 94 of TransCanada's Annual Report available on [www.transcanada.com](http://www.transcanada.com) for detailed information on our business risks, their potential impact, and our work to monitor and mitigate these risks. You can find risks specific to each operating business segment in the business segment discussions in TransCanada's Annual Report as well.

## MANAGEMENT SYSTEMS

At TransCanada, we are committed to using a management systems approach for the continuous improvement of our day-to-day activities. TransCanada's management systems are "plan, do, check, and act" cycles and include measures of our performance.

Photo at right: To ensure our pipelines are in safe operating condition, we regularly inspect our pipelines using in-line inspection tools called smart pigs, which can identify even the tiniest crack, flaw or sign of corrosion.



TransCanada was recognized by the Institute of Asset Management with an award for building a robust operational risk management framework in 2015.

# EFFECTIVE RISK MANAGEMENT

These management systems consist of standards, processes, and tools that provide structure to our risk control and safety management programs and are based on risk and quality management principles. Through these management systems, our assets achieve performance requirements and targets consistent with TransCanada's objectives for safety, quality, regulatory compliance, security and environmental protection, while maintaining cost, reliability and efficiency objectives.

### TRANSCANADA'S OPERATIONAL MANAGEMENT SYSTEM (TOMS)

In 2016, TransCanada continues to evaluate our management systems and will complete a project to integrate our various management systems into a single management system – the TransCanada Operational Management System (TOMS). The TOMS framework will establish a structure under which corporate programs are developed, maintained and continually improved. TOMS will integrate and bring all existing systems and programs, including the Capital Project Management System; Asset Management System; Commercial Services and Design Management System; and Health, Safety and Environment Management System, under one single management system. TOMS will provide expectations on how our assets are designed, constructed, operated and decommissioned in a manner that ensures the safety and security of the public, our personnel, our physical assets, and protection of property and the environment.

### CAPITAL PROJECTS MANAGEMENT SYSTEM (CPMS)

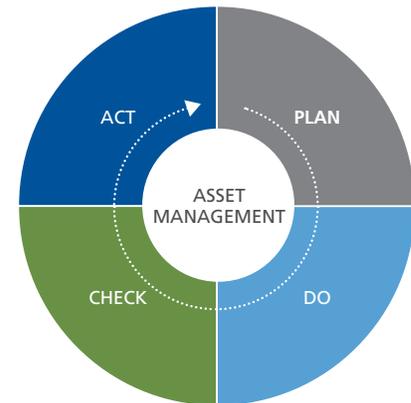
CPMS is a quality management framework that supports TransCanada's objective to excel in project delivery. It is based on industry-accepted best practices – International Organization for Standardization (ISO) 9001 – for project management and quality management standards for large-scale construction projects. TransCanada's commitment to the development, implementation and maintenance of a quality management system for capital projects is reflected in a TransCanada Quality Commitment Statement.

Our continual improvement procedures enable us to correct issues quickly, identify root causes, prevent future issues, and further refine our management processes over time. We believe all defects are preventable and are committed to continual improvement. As well, we endeavour to do business with suppliers and contractors who share our expectations for quality management and work with them to continually improve.

### ASSET MANAGEMENT SYSTEM (AMS)

Based on risk and inherent value of specific assets, the AMS consists of processes, techniques and tools that provide an integrated and scalable approach in decision-making. It enables assets to meet performance requirements and targets TransCanada's objectives associated with the cost, availability, efficiency, quality, regulatory, safety and environmental expectations of our assets. AMS aligns with the Publicly Available Specification (PAS) 55/ISO 55000 standards.

### ASSET MANAGEMENT SYSTEM



- Commitment Statement and Principles  
Strategy and Objectives  
Structure and Responsibility  
Planning  
Information Management  
Risk Management  
Compliance Management
- Implementation  
Resource Management  
Communication Management  
Management of Change
- Performance and Condition Monitoring  
Incident and Emergency Investigation  
Control of Nonconformance  
Internal System Audit
- Continual Improvement  
Management Review

The purpose of the AMS is to:

- align all operating groups to ensure business objectives and specific performance targets for assets are understood
- ensure an organized and disciplined approach is taken to continually improving operational risk management programs and practices
- ensure performance targets drive the decisions on investing, operating, maintenance and capital resources
- drive broad and ongoing continuous improvement which builds on past successes
- establish the organizational capability to effectively implement the AMS
- align related management systems, processes, policies and procedures that will support achieving the objectives above

## HEALTH, SAFETY AND ENVIRONMENT MANAGEMENT SYSTEM (HSE MS)

TransCanada uses an integrated Health, Safety and Environment Management System (HSE MS). HSE MS aligns with ISO 14001/9001 and Occupational Health and Safety Advisory Services (OHSAS) 18001 standards and provides the foundation for all of TransCanada's health, safety and environmental protection programs.

TransCanada's HSE MS encompasses an initial planning process for identifying hazards and assessing risk, followed by implementation of specific risk control and mitigation programs and performance evaluation, including any necessary corrective measures. This is followed by a review of the overall HSE MS for suitability,

adequacy and effectiveness against our HSE Commitment Statement. The complete cycle is repeated, resulting in ongoing improvement in HSE management. The approach is not only a regulatory requirement in Canada but also represents current industry best practices.

Accountability for the HSE Commitment Statement lies with our CEO. TransCanada's HSE MS applies across the company to all lines of business, assets and TransCanada operated, partially owned entities. It applies to the complete life cycle of our business – from acquisition to design and construction, to operations and sale or retirement.

More information on the HSE MS is available on [www.transcanada.com](http://www.transcanada.com).

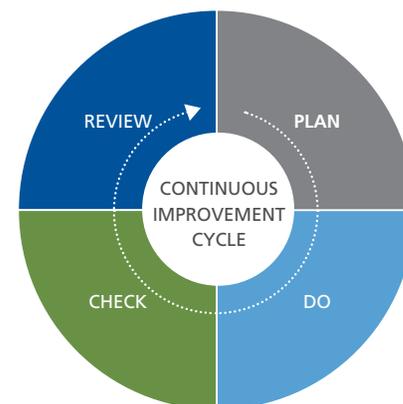
## Four Tiers of Health, Safety and Environment Governance

As an integral part of TransCanada's management system approach, the HSE MS provides a systematic, four-tiered approach to HSE governance. This assists TransCanada and its business entities in ensuring that governance and due diligence requirements are being monitored, measured, met and modified appropriately.

### Tier 1 Activities

Driven by regulatory specifications, internal risk analysis and best practices for safety and environment compliance, Tier 1 activities are the foundation of HSE governance. They entail fundamental workplace safety activities conducted by field and/or office employees on a daily, weekly and monthly basis, such as site, facility and equipment inspections, and routine general maintenance tasks. In 2015, we completed 224,359 Tier 1 activities.

## HSE MS FRAMEWORK



- Health, Safety, and Environment (HSE) Policy  
Risk and Regulatory Assessment  
Objectives and Targets  
Structure and Responsibility
- Operational Controls  
Contractor Management  
Emergency Preparedness and Response  
Training and Awareness
- Documents and Records  
Communication and Reporting
- Performance, Audit and Review

## Tier 2 Activities

These are formal planned workplace and facility inspections designed to identify hazards and include physical conditions of the workplace, reviews of documents and records, and compliance to applicable regulations. In 2015, we completed 935 Tier 2 inspections.

## Tier 3 Internal Audits

These are triennial assessments of TransCanada's HSE MS across our various assets with the goal of ensuring the effectiveness, adequacy and continuous improvement of the HSE MS and its tools. In 2015, previous audit action items were completed to closure and there were no planned Tier 3 audits initiated.

## Tier 4 External Agencies

This tier provides for an external independent quality assurance and quality control assessment of TransCanada's HSE Governance Process, including a verification of the effectiveness and adequacy of TransCanada's HSE MS for ensuring compliance and conformance. Regulatory agencies representing various jurisdictions completed 158 inspections/audits of our facilities in 2015. There were no immediate priority findings as a result of the inspections/audits.

## NATIONAL ENERGY BOARD (NEB) CORRECTIVE ACTION PLAN

In 2013, TransCanada became the first company to take part in a new National Energy Board (NEB) program to conduct comprehensive audits of protection programs and management systems in the Canadian pipeline industry.

Since then, a taskforce including representation from our Management Systems teams and the Safety, Environmental Management, Emergency Management, Third Party Crossings and Public Awareness programs has been working diligently to develop and implement the appropriate Corrective Action Plan (CAP) to address the findings of the audit and enable TransCanada to meet or exceed industry standards in these areas going forward.

In June 2015, the taskforce submitted the last of 278 CAP deliverables to the NEB, concluding one of the most exhaustive and thorough review processes in which TransCanada has ever participated. The NEB auditors are currently reviewing this information and will provide the final Implementation Assessment Reports in 2016 to close out the audit. The results of the audit are available on the NEB website at [www.neb-one.gc.ca](http://www.neb-one.gc.ca).

For TransCanada, the next stage of this effort involves a transition of the CAP work into ongoing sustainment through the governance of our management systems.

Some of the notable outcomes of the CAP project and related key activities include:

- Legal Monitoring Process and Concordance Table build – Established a consistent and systematic approach to monitoring regulatory changes and developed a concordance table to align legal requirements with TransCanada's processes and associated activities. Over 19,000 lines of legal requirements were identified and concordance established as part of this effort.

- Management of Change (MOC) – Implemented a structured MOC process in all Onshore Pipeline Regulation (OPR) protection programs and NEB regulated facilities.
- Management Review – Developed and implemented a structured and documented manner for conducting management review of programs and management systems.
- Goals, Objectives & Targets – Established performance measures aligned to corporate strategy for all OPR protection programs and management systems as a means of monitoring their ongoing effectiveness and adequacy.
- Document Control Standards – Implemented a structured document control standard in all OPR protection programs and NEB regulated facilities.
- Risk Management Framework – Implemented a comprehensive Risk Management Framework that enables TransCanada to apply consistent hazard identification, risk assessment practices and disciplined risk mitigation strategies throughout OPR protection programs and NEB regulated facilities.

## COMMITMENTS TO EXTERNAL INITIATIVES

TransCanada voluntarily adheres to a number of externally developed economic, environmental and social standards such as the International Standards Organization, Occupational Health and Safety Advisory Services, and the Canadian Human Rights Commission Human Rights Maturity Model. Information on these initiatives can be found throughout this report where applicable.

Photo at right: Our goal is to ensure the safety of our employees, the public and our assets across North America – such as at our Otter Lake Compressor Station in northern Alberta.

# GETTING IT RIGHT



Our occupational and facility safety records are among the best in the industry, but we believe that no safety-related incidents are acceptable and we will not be satisfied until we reach our ultimate goal of zero incidents.

**ALEX POURBAIX**  
Chief Operating Officer

## SAFETY

**Our number 1 priority is your safety. Our goal is to ensure that our pipeline and energy facilities operate safely every day and that the public, our employees and the environment are never negatively affected by an incident involving our assets.**

We know that our performance in safety and reliability influences your level of trust in us – which in turn will affect the long-term success and sustainability of our business.

Our industry is collaborating and working together to improve safety performance across the board. Our participation in initiatives such as Integrity First through the Canadian Energy Pipeline Association (CEPA) and Integrity Management Continuous Improvement through the Interstate Natural Gas Association of America (INGAA) is about bringing together some of our industry's greatest minds and influential leaders to define, share and implement leading practices to improve performance in safety, environment, and socio-economics. In 2015, TransCanada led an initiative through the CEPA and INGAA Foundations – sister organizations that include the contractors and suppliers of the gas transmission industry – which resulted in the advancement of construction quality management programs and a construction inspection certification program.

## **ENSURING OUR ASSETS ARE SAFE AND RELIABLE**

At TransCanada, ensuring our pipelines and other facilities operate safely and reliably is the most important aspect of our business. Pipelines are the safest, most efficient and environmentally responsible way to transport natural gas and petroleum products, and TransCanada has an industry-leading safety record with a goal of achieving zero incidents.

Caring for your safety includes extensive preventive and maintenance work by the engineers and technicians who make up the Pipeline Integrity, Facility Integrity and Reliability, and Field Operations groups. Our goal is to keep our assets operating safely and reliably, every day.

## **PIPELINE INTEGRITY – WE TAKE SAFETY SERIOUSLY**

Our safety program starts before construction. TransCanada uses only high-quality materials, the latest proven technology and industry-leading practices to ensure the integrity of our pipelines begins before they go in the ground. During construction, we require every weld to be inspected by qualified independent inspectors and we use radiography and automated ultrasonic testing techniques to check for irregularities before our pipelines go into service. Qualified inspection personnel visually inspect every phase of the construction process to ensure compliance with company and regulatory standards and specifications.

TransCanada takes significant steps to prevent and minimize the chances of a pipeline leak and detect irregularities both before beginning transportation service and during operations.

We use state-of-the-art leak-detection systems, safety features such as shut-off valves and highly specialized training for people working on our assets from the construction process to operations. During operations, the pipelines are monitored 24 hours per day, seven days per week by a state-of-the-art oil or gas control centre. This dedication to safety is practised at every level of the organization, making us confident our infrastructure will continue to operate safely and any possible defects will be identified immediately and responded to accordingly.

Along with these safety practices, TransCanada invested \$1.5 billion in integrity and preventive maintenance programs in 2015 to ensure safe and reliable operations of our pipeline systems. TransCanada will continue to invest in new technologies and maintenance to ensure our pipelines operate safely and reliably.

## **PIPELINE INTEGRITY PROGRAM**

One of the key programs within the AMS (see Management Systems section on page 10 for more information) is TransCanada's Pipeline Integrity Program. Within this program, there are comprehensive integrity management plans (IMPs) that outline the processes and procedures defining who, what, where, when, and how specific pipeline- and facility-related integrity activities are to be conducted. The IMPs provide a consistent methodology for the development of the annual integrity management activities and projects that are implemented across all of TransCanada's pipeline systems. These plans also outline roles and responsibilities, documentation, management review and performance measurement requirements.

Currently, there are six IMPs in our pipeline integrity program that align to the various regulatory jurisdictions and lines of businesses in Canada, the U.S. and Mexico. These IMPs are:

1. U.S. High Consequence Areas – Natural Gas Pipelines
2. U.S. Non-High Consequence Areas – Natural Gas Pipelines
3. U.S. Liquid Pipelines
4. Mexico Natural Gas Pipelines
5. Canadian Natural Gas Pipelines
6. Canadian Liquid Pipelines

Through our management systems approach outlined within the IMPs, the pipe integrity team focuses on key areas that further our commitment to pipeline and public safety by:

- Ensuring compliance with regulatory and code requirements
- Developing and applying new technologies and tools to continually enhance our integrity management capabilities
- Conducting baseline in-line inspections of all our newly constructed assets
- Planning and executing on the Accelerated Assessment Program (AAP) which focuses on conducting baseline in-line inspections of pipelines that are not currently configured to be or have not been internally inspected with state-of-the-art in-line defect detection tools
- Ensuring management system adoption to learn and foster continual improvement in our industry-leading safety performance as we strive to achieve a goal of zero incidents

The safety of our assets is important to us, and we strive for excellence by continually reviewing our performance as well as benchmarking ourselves against our industry peers throughout the world.

## LEAK PREVENTION AND PROTECTION

TransCanada takes significant steps to prevent and minimize the chances of a pipeline leak and detect irregularities both before beginning transportation service and during our assets' operations.

TransCanada employs state-of-the-art construction standards:

- Each weld is checked by radiographic or ultrasonic processes to ensure it is sound
- The surface of the pipeline is coated for protection
- Qualified inspection personnel visually inspect every phase of the construction process to ensure compliance with company and regulatory standards and specifications
- Where the pipeline has been welded, a liquid bond epoxy is applied to protect the weld
- A very low voltage electrical current called cathodic protection is applied on the pipeline to prevent corrosion
- Completed sections of pipeline are tested by filling them with water and pressurizing them to a level higher than the level the pipe will experience during normal operations

Once in operation, high-resolution in-line inspection tools called smart pigs are used to detect internal and external defects. If any irregularities are found, investigations and the necessary repairs are proactively performed to ensure the continued safe operation of the pipeline.

Before beginning operations, TransCanada ensures that detailed Emergency Response Plans (ERPs) are completed to protect the public, environment and wildlife, and that the required trained and qualified personnel and equipment are in place.

In the unlikely event that an incident were to occur, our pipelines have site-specific ERPs in place, developed in collaboration with local emergency responders, to guarantee a quick response. These plans require regulatory approval and are supported by an Incident Command System that outlines procedures to protect the public, emergency responders, property and the environment. These plans are tested in a series of annual emergency response drills and exercises. See the Emergency Management section on page 25 for more information on emergency preparedness and response.

In the unlikely event of an incident, TransCanada will take full responsibility for providing the cleanup expertise, equipment and personnel needed to restore a site to meet or exceed regulatory standards, and will pay for any associated damages.

## DETECTING IRREGULARITIES

TransCanada has Operations Control Centres (OCCs) that are staffed 24 hours a day, seven days a week. Trained operators at the OCCs manage the most sophisticated pipeline monitoring equipment and technology available, giving them the ability to ensure TransCanada's pipelines are continuing to operate safely and effectively.

Our gas and liquids pipelines feature SCADA (Supervisory Control and Data Acquisition) Systems and leak detection systems used by the OCCs. In addition, TransCanada has a number of programs that help monitor the integrity of the pipeline, including:

- Public and landowner awareness programs – We support numerous programs designed to encourage and facilitate the reporting of suspected leaks and events that may suggest a threat to the integrity of the pipeline. We also work closely with industry associations to educate the public on using [www.clickbeforeyoudig.com](http://www.clickbeforeyoudig.com), 811 “Call Before You Dig” and other one-call systems in the jurisdictions where we operate. See the Public Awareness section on page 24 for more information.
- Aerial patrols – We regularly inspect the pipeline route from low-flying helicopters and airplanes. The pilots look for hazards to the pipeline from outside sources (e.g., unauthorized activity, soil disturbances) that could affect the integrity of our pipeline system.
- Aerial leak surveys – In addition to the visual inspections noted above, TransCanada pilots perform scheduled aerial leak detection surveys on the natural gas pipelines using sensitive detection equipment mounted on the aircraft.
- Geotechnical monitoring – TransCanada's pipelines cross more than 10,000 bodies of water and significant slopes. All of these are monitored for erosion and movement during aerial patrol. Particularly active slopes and streams are monitored more thoroughly through a variety of survey techniques.
- Depth-of-cover surveys – TransCanada investigates areas where we suspect wind or water erosion may have reduced the depth of ground cover over our pipelines in order that we can maintain the integrity of the pipe.
- In-line inspection – In-line inspection, also referred to as ‘pigging,’ looks for any locations where corrosion and other anomalies may have occurred. Specialized internal inspection devices called ‘smart pigs’ travel through the pipeline collecting data. The data is then analyzed to determine if there are areas of concern requiring further investigation.
- Investigative digs – TransCanada conducts investigative digs based on the data analysis from pigging and other information. Sections of pipeline are excavated to investigate their condition and to ensure integrity. Detailed engineering assessments are used to determine if and when repairs are required.

TransCanada is actively involved in multiple industry-research programs related to the evaluation of emerging leak detection technologies to identify opportunities to continuously improve our leak detection

capabilities. This includes testing negative pressure wave leak detection, cable-based leak detection research and testing, leak detection and intrusion detection using infrared cameras and airborne leak detection testing.

## Liquids Pipelines

From the first sign of a potential issue anywhere on our liquids pipeline system, our OCC operators can stop the flow of product inside the pipeline within minutes. If an abnormal condition is detected (e.g., an abnormal or unexpected drop in pressure), a SCADA system located in the OCC will immediately alert operators to shut down operations along the pipeline. With the flow stopped, the OCC will close shut-off valves on the system, isolating the product in the pipe and limiting potential impacts.

Pipeline valves are located at pump stations and at regular intervals along the pipeline between pump stations to limit spill volumes. The placement of these valves is influenced by local safety and environmental considerations. For instance, valves are placed on either side of major water crossings or where necessary to protect other sensitive resources. In addition, elevation changes will influence the location of these valves.

In addition to shutting down the pipeline section, the OCC will immediately dispatch pipeline emergency response personnel to the scene to investigate. The pipe cannot be restarted until it has been confirmed on site that it is safe to do so using a detailed verification checklist to ensure all risks have been addressed.

Further to the SCADA system, our liquids pipelines feature leak detection methods and systems that include:

- Remote monitoring – Operators at the OCCs monitor all pressure, temperature and flow data received from meter stations, pump stations and valve sites. Remote monitoring can detect incidents immediately so the line can be shut down in minutes and valves surrounding the incident area can be closed, limiting the impact of a potential incident.
- Software-based volume balance system – This system compares the injection and delivery volume and initiates an alarm for the pipeline controller if ever there is a discrepancy between what is put into the pipe and what is delivered.
- Acoustic leak detection – TransCanada uses in-line inspection tools that employ sound waves to detect anomalies in the pipe by analyzing sounds (acoustic) and frequencies that might indicate a small leak.
- Direct observation – TransCanada also uses aerial patrols to monitor the pipeline and right of way (ROW). In 2015, TransCanada undertook 420 aerial patrols covering 435,000 kilometres (270,300 miles) of pipeline. Site inspections are regularly performed as well.

### **Natural Gas Pipelines**

TransCanada owns and operates pipelines and other associated natural gas facilities including meter stations and compressor stations. We implement routine quality inspections and 24-hour monitoring programs throughout the life of the

pipeline. Meter stations are facilities necessary within a pipeline system that measure the volume of natural gas transported by a pipeline. Natural gas is measured at all locations where it either enters or leaves the pipeline. In order to make the gas flow continuously at a desired rate, the gas is re-pressurized at key locations along the pipeline by mechanically compressing the gas at sites connected to the pipeline, known as compressor stations.

The pipelines are equipped with multiple valves that can be closed manually or automatically, often within minutes. Pipeline mainline valves are located approximately every 30 kilometres (19 miles) along the pipeline. TransCanada maintains approximately 100,000 valves on our pipeline system. Each of these valves requires specific routine maintenance depending on function and valve condition.

**TransCanada will not restart the pipeline until the issue has been identified, resolved and it is safe to do so.**

In the unlikely event of an incident, TransCanada will immediately respond by shutting down the pipeline and dispatching the appropriate personnel to the location of the incident. Valves spaced at intervals along TransCanada pipelines will be shut off either automatically or manually allowing incidents to be quickly and effectively isolated. If pipeline pressure drops due to a leak, the valves automatically stop the flow of gas.



Photo by Kyle Marquardt

TransCanada was awarded a 2015 Environmental Performance Award by the American Petroleum Institute (API) for having the best performance record in the large-operator category by having no releases in 2014 for our U.S. oil pipeline assets.

The API annually recognizes the safety and environmental performance of large and small hazardous liquids pipeline operators. Performance is based on data voluntarily submitted to the Pipeline Performance Tracking System (PPTS). The PPTS is a key component of the U.S. oil pipeline industry's Environmental and Safety Initiative, a multi-disciplinary approach to understanding and improving industry performance.

## PREVENTION AND RESPONSE PLANNING – IN ACTION

TransCanada's ability to respond to an oil spill was tested in 2015 during a day-and-a-half-long exercise, dubbed "Operation Riverboat," which simulated an oil spill resulting from a third-party pipeline strike near water in Yankton, South Dakota. The operation included collaborative participation by more than 100 participants from TransCanada, three regulatory agencies, four local governments, local first responders and six contractors – not to mention the chair of the health, safety and environment committee and members of the executive leadership team.

"Everybody came with a willingness to quickly integrate and work together," says Jeremy Dangel, manager of TransCanada's Emergency Preparedness and Response. "People brought their subject matter expertise, their training and their experience to the exercise, and they also brought a willingness to work quickly and safely as a team to solve problems."

During the exercise, emergency crews deployed booms that would contain the crude and prevent it from reaching the main channel of the Missouri River. But, typical of such exercises, there was a major simulated curveball overnight.

In contrast to the beautiful autumn weather the crews were actually experiencing in Yankton, the simulation imposed foul weather that settled in overnight. As part of the exercise, high winds had caused the crude to move beyond the booms, and into the creek heading straight for the river. An Emergency Operations Centre was established in Calgary, and an Incident Command Centre was set up in Yankton.

Everyone recognized both the urgency and TransCanada's responsibility to respond quickly and efficiently. The Incident Command System used by TransCanada is recognized across North America as the best way to allocate human and tactical emergency response resources.

Activity on the river and in the Incident Command Centre was rapid, orderly and efficient.

"The thing that impressed me the most about the TransCanada exercise is that what they told us in the past they could do, they can do," says Paul Scherschligt, emergency management director for Yankton County. "We always hear comments like, 'If there's an incident, we can bring thousands of pieces of

equipment to the scene in no time.' I believe it now. After seeing the level of response in this incident, it puts me a little more at ease, knowing that the stuff is there and available, and they are serious about what they say they can do."

Having the state and federal regulators on hand to evaluate TransCanada's response to the drill added an extra level of realism to the scenario.

"We invite that," says Dangel. "We always welcome feedback on our processes so we can continually improve. We are always upping our game and raising the bar for the industry."

TransCanada is committed to doing the right thing and understanding how all the moving parts work together to make a cohesive and effective response to an emergency. We routinely perform these exercises to identify opportunities and gaps in our program that can be addressed before an actual incident might occur. We fully believe in testing our actual processes against possible real-world scenarios.

Read more on TransCanada's blog at [blog.transcanada.com](http://blog.transcanada.com).

## INSPECTING OUR PIPELINES – IN-LINE INSPECTION

TransCanada has over 70,000 kilometres (43,500 miles) of pipelines in North America. Part of ensuring our pipelines are in safe operating condition involves regularly inspecting the condition of our pipelines after they are installed underground. This is done through a process called in-line inspection.

TransCanada uses in-line inspection tools known as smart pigs. These specialized tools contain an onboard geo-based computer system, and travel through the pipeline collecting data which is then analyzed to determine the condition of the pipe. These tools are equipped with high resolution electronic sensors that inspect the quality of the pipeline inside and out to identify even the tiniest crack, flaw or sign of corrosion.

The pigs travel through the pipeline without interrupting the flow of product through the pipe. If an area of concern is identified, TransCanada investigates further to determine how to proceed with repairs or replacement to the section of pipe identified.

Photo at right: TransCanada routinely conducts emergency drills and exercises with local and external agencies across our entire network of assets, such as this drill in Swift Current, Saskatchewan.

# COMMITTED TO SAFETY 24/7

In 2015, we received a SAFE (Safety Award for Excellence) Award in the Corporate Safety: Vehicular Safety category from the Canadian Gas Association – the second year in a row we received the national recognition.

## DETECTING IRREGULARITIES – IN ACTION

### Collaborating on Pipeline Safety

Since 2014, engineers from leading energy infrastructure companies have together tested the latest cable-based technologies to identify optimal methods of detecting leaks on liquids pipelines at C-FER Technologies' External Leak Detection Experimental Research (ELDER) research and testing facility in Edmonton.

This facility, funded by the Government of Alberta, TransCanada, Enbridge, and Kinder Morgan, has allowed these companies to pool their resources and share in the testing and study of various vendor technologies.

The \$1.4-million ELDER apparatus, which opened in the fall of 2014, has created an environment where vendors of the latest leak-detection technologies for oil pipelines can test their wares in controlled and realistic conditions by an objective third-party – C-FER.

For the next phase of research, in 2015 TransCanada entered into a Joint Industry Partnership agreement with Enbridge and Kinder Morgan to conduct research into aerial-based leak detection technologies in the interest of enhancing across-the-board pipeline safety. The remarkable aerial technologies being tested at C-FER have the potential to spot leaks from the air before they're even visible to the human eye, and could be deployed using helicopters, aircraft or even unmanned aerial vehicles (drones).

It is about adding new layers of protection to TransCanada's multi-faceted pipeline integrity program, which already includes a robust program of aerial inspections, 24/7 monitoring and ongoing analyses by smart pigs.

"We're trying to spot leaks before they get to surface; that's why we're looking at different technologies. Things like

the thermal image of the pipeline might change, the ground might heave or the volatile organic compounds or gases that come up through the ground might be visible through these different detection technologies," says Brian Wagg, director of business development and planning for C-FER.

We work hard to identify the most cutting-edge R&D initiatives that will move the needle for our industry, keep our communities and the environment safe, and benefit the people who use the energy we transport. As North America's leading oil and gas pipeline companies, TransCanada, Kinder Morgan and Enbridge agree that improving the safety and reliability of pipelines is in everyone's best interest.

Read more on TransCanada's blog at [blog.transcanada.com](http://blog.transcanada.com).

## 2015 IN-LINE INSPECTIONS AND INTEGRITY DIGS

	Runs Analyzed	In-line Inspections (km/mi)	Completed Integrity Digs (# digs)
<b>Canada</b>			
Gas	86	5,243 km / 3,257 mi	618
Liquid	4	1,149 km / 714 mi	21
<b>U.S.</b>			
Gas	43	3,759 km / 2,335 mi	73
Liquid	10	2,460 km / 1,528 mi	12
<b>Mexico</b>			
Gas	3	357 km / 222 mi	0
<b>Totals</b>	<b>146</b>	<b>12,968 km / 8,056 mi</b>	<b>724</b>

TransCanada uses different types of smart pigs for the detection of various types of anomalies in a pipeline. We are a leader within the pipeline industry in developing and using smart pig technology as a key part of our pipeline integrity program. The following are the main smart pig technologies deployed by TransCanada:

- Electro-magnetic acoustic transducer (EMAT) pigs are used for the detection of small cracks in natural gas pipelines. TransCanada has made a significant investment in the development of EMAT technology over the last two decades.

- Phased-array ultrasonic tools are used for the detection of small cracks in liquids pipelines.
- Magnetic flux leakage (MFL) pigs are used for the detection of corrosion anomalies in both natural gas and liquids pipelines.
- High resolution caliper pigs are used to detect dents and mechanical damage on both natural gas and liquids pipelines.

Each of these tools provides high resolution data on the various anomalies that are then evaluated by our engineers and technologists. These pigs have on-board computers and inertial systems that precisely identify anomalies with geographic co-ordinates, which aids in the timely followup and repair of a reported anomaly.

We conducted 146 in-line inspections across all our pipeline systems in Canada, the U.S. and Mexico and completed 724 integrity digs as well in 2015.

## FACILITY INTEGRITY AND RELIABILITY MANAGEMENT

Facility Integrity and Reliability Management (FIRM) is the process used by TransCanada to ensure the integrity of facilities assets in Canada, the U.S. and Mexico. Facilities assets include equipment located at compressor stations, pump stations, metering facilities, oil terminals and power generation plants – equipment such as electrical equipment, control systems, tanks, and utilities systems.

Integrity management procedures contribute to sustaining and maximizing the value of TransCanada's energy assets through the development and maintenance of risk-based integrity management strategies and integrity plans.

The FIRM program is composed of four workflow procedures that establish a consistent structure for all engineering disciplines. The four procedures are:

- Systemic Issue Management – identify, classify and prioritize facility integrity issues
- Risk Management – identify threats, define and approve risk treatments
- Integrity Management Strategy – develop approved strategic plans for managing integrity of facilities assets
- Integrity Plan – develop tactical integrity plans

## RESEARCH AND DEVELOPMENT

We have an impressive track record over the years of implementing leading-edge technologies and techniques developed through our R&D program. Our R&D program helps us shape the future of the pipeline industry in terms of advancing safety, integrity and quality – all of which are incredibly important to our stakeholders and for the sustainability of the company.

In the past five years, we have dedicated more than \$141 million towards technology development to support an internal research program as well as joint partnerships. We collaborate with industry associations and peers, academia, government and non-governmental organizations in Canada, the U.S. and Mexico to enhance the safety, efficiency and reliability of our pipeline construction and operations. Our joint partnerships enable us to leverage greater funding and share results to improve standards across the industry.

## FIRM PROCESS



● SYSTEMIC ISSUE MANAGEMENT  
Identify, classify and prioritize facility integrity issues.

● RISK MANAGEMENT  
Identify threats, define and approve risk mitigations.

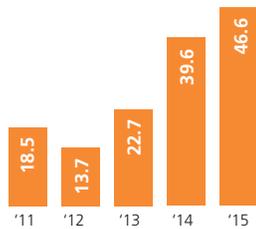
● INTEGRITY MANAGEMENT STRATEGY  
Develop approved strategic plans for managing integrity of facilities and equipment assets.

● INTEGRITY PLAN  
Develop tactical integrity plans.

Today, we have one of the industry's largest research and development programs. In 2015 alone, more than \$45 million was spent on R&D activities, with a focus on technology advancements in the areas of in-line inspection, cathodic protection, leak detection and coating technology. In addition to investing in safety, we support research that benefits many areas of our business such as gas quality, flow efficiency, health, safety and environment, as well as facilities and measurement.

We also once again landed a spot on Canada's Top 100 Corporate R&D Spenders List by Research Infosource in 2015. It's a reflection of our unwavering commitment to continually improve industry-wide standards and our own performance in the areas of safety and environment.

**Investment in Research and Development**  
(CAD\$ M)



## PROTECTING OUR COMMUNITIES

Your safety is our number 1 priority and we strive for zero incidents. In the unlikely event of an incident, TransCanada is prepared to respond quickly and appropriately.

Our operations extend across North America and we have established offices in many communities. Each region is fully staffed with qualified employees trained in safety and emergency response who ensure the safe and efficient operation of our facilities in the area.

We have strong partnerships with emergency services organizations in the communities where we operate. These local first responders, such as firefighters, police and emergency medical crews, are familiar with TransCanada's operations and are ready to respond in the event of an incident.

While we are always prepared to respond to emergencies, we also believe strongly in the importance of public awareness and damage prevention. TransCanada's holistic public awareness program is geared toward preventing unauthorized activities, enhancing leak recognition and response, and promoting effective emergency preparedness.

It is part of TransCanada's commitment to protect your safety, the safety of our employees, the environment and our assets.

### PUBLIC AWARENESS

TransCanada's Public Awareness (PA) program educates and engages identified stakeholders in pipeline safety with a goal of protecting the public, the environment and our pipeline facilities. These identified stakeholders include the affected public, excavators/contractors, emergency responders and public officials.

At a minimum, we provide these groups with information about how to recognize the signs of a pipeline leak and the importance of using call or click before you dig services to locate underground utilities. For more information on how to call or click before you dig, including your local one-call centre number, visit the Public Safety and Awareness section of [www.transcanada.com](http://www.transcanada.com).

The PA program's objectives, identified stakeholders, messaging and education materials (such as brochures, presentations, advertising, etc.) and strategies are regularly evaluated and updated to ensure we are communicating accurate information in the best way possible.

Every year, TransCanada also creates and distributes a calendar promoting pipeline safety awareness for landowners near our assets and along our pipeline routes. In 2015, 26,914 calendars were directly mailed to landowners in Canada and 30,023 calendars were delivered to landowners in the U.S.

In addition, TransCanada maintains a partnership with Pipeline Association for Public Awareness (PAPA), a non-profit organization established to provide pipeline safety and emergency preparedness information to residents, businesses, farmers, excavators, emergency responders and public officials. TransCanada is also a proud sponsor of the Common Ground Alliance, a non-profit organization set up to reduce damage to underground utility infrastructure.

### THIRD-PARTY DAMAGE PREVENTION

Third-party damage is defined as impact or exposure resulting in the need to repair an underground facility. We mitigate this threat through our robust Public Awareness program, aerial patrols to monitor for unauthorized activities and our support for one-call programs that allow anyone conducting excavations to request a free locate of the utilities on their property. Last year alone, TransCanada undertook 420 aerial patrols covering 435,000 kilometres (270,300 miles) of pipeline.

All these programs are aimed at driving down the frequency of third-party damage. The following graph illustrates TransCanada's performance on unauthorized encroachments. An unauthorized encroachment can include excavating, storing, dumping, building or planting in or near the pipeline ROW without the notification or approval of TransCanada.

In 2015, TransCanada noted an increase in the rate of unauthorized excavations identified in isolated geographic regions. We will take a targeted approach to deliver pipeline safety information to strengthen awareness in these geographic regions.

### Unauthorized Pipeline Encroachments

Normalized by 1,000 km of ROW and One-Calls  
Normalized by ROW  
Canada, U.S. and Mexico



## EMERGENCY MANAGEMENT SYSTEM AND PROGRAM

Through robust emergency management programs, emergency preparedness and emergency response, we strive to ensure a quick and appropriate response to emergencies on any of our assets.

In the event of any emergency, our goal is to ensure an effective, co-ordinated response to contain and control any incident in order to minimize harm to people, property, company operations, and the environment.

Our system is documented and tested regularly through annual exercises involving both our employees and the community. By working with our communities, TransCanada builds relationships with local first responders and community officials, informing each other of emergency response strategies and gaining an understanding of each other's roles and responsibilities.

We continuously improve our emergency response program by developing complex exercises to test emergency management procedures and by training staff in effective emergency response. For example, in 2015, we held the most extensive full-scale multi-day oil spill exercise to date on the Keystone system. See In Action on page 20 for more information.

The Emergency Management Program provides a consistent and comprehensive approach to emergency preparedness and response within TransCanada.

The Emergency Management Corporate Program Manual was developed in accordance with the NEB Onshore Pipeline Regulations (SOR/99-294), the CSA Z 662-11, and Z731-03 standards, and the Department of Transportation Pipeline and Hazardous Materials Safety Administration 49 CFR Parts 192, 194 and 195 Regulations. Industry recommended practices, including the newly published American Petroleum Institute Recommended Practice 1174, were reviewed and adopted where appropriate.

## PUBLIC AWARENESS STAKEHOLDERS REACHED THROUGH DIRECT MAIL IN 2015

	Canada	U.S.	Total
Affected Public	232,677	239,647	472,324
Emergency Responders	1,050	13,720	14,770
Public Officials	1,124	67,654	68,778
Excavators/Contractors	96,883	162,250	259,133
<b>Total</b>	<b>331,734</b>	<b>483,271</b>	<b>815,005</b>

## EMERGENCY PREPAREDNESS

Emergency preparedness is the foundation that supports our response activities. Preparedness includes plans and procedures that recognize the needs of TransCanada, its employees and the community, as well as comprehensive training for employees, contractors and first responders.

Our Emergency Management team is sharply focused on its strategic goal, "to effectively respond to and mitigate emergencies in a timely and co-ordinated manner." With oversight and governance from a steering committee of senior management, our emergency management team develops and continually improves programs to:

- Provide robust and effective emergency response capabilities spanning the full scope and life cycle of our assets
- Achieve high standards of competency and awareness for employees, contractors, stakeholders, communities and emergency responders

### Emergency Response Plans (ERPs)

Emergency Response Plans (ERPs) help us collect information that will safeguard the public, our employees and contractors in the event of an emergency. The ERPs also help reduce the potential for destruction of property, minimize the impact on the environment and limit interruption of service. Site specific plans are created for all head, regional and facilities offices as well

as power facilities, hydro dams, gas storage facilities, compressor stations and metering stations, or any other areas deemed sensitive that our pipelines may cross or be adjacent to. The plans are reviewed annually, and an emergency event analysis is completed and updated if there is a significant change in the business practices or facility.

### Emergency Preparedness Training

Emergency preparedness training provides participants with a clear chain of command: efficient, accurate communications, strategic thinking and informed decision-making.

TransCanada conducted more than 125 emergency drills and exercises across our entire network of assets in 2015. These simulations allow company personnel and external agencies to practice the skills and communication protocols required in the unlikely event of a serious incident involving one of our pipelines or facilities.

## EMERGENCY PREPAREDNESS AND RESPONSE EXERCISE COMPLETIONS

	2011	2012	2013	2014	2015
Total exercises completed <sup>1</sup>	82	96	104	113	125
Annual Field Exercises	18	18	23	22	22
Field Tabletop Exercises	46	62	66	61	67
Equipment Deployment Exercises	10	10	10	10	10
Calgary and Houston Support Department Tabletop Exercises	8	6	5	19	26

## EMERGENCY PREPAREDNESS AND RESPONSE TRAINING COMPLETIONS

	2011	2012	2013	2014	2015
Regulatory Training (HAZWOPER) <sup>2</sup>	260	439	547	532	446
Best Practice Training (Incident Command System) <sup>3</sup>	908	1,144	1,559	2,576	2,364

<sup>1</sup> A tabletop exercise involves key personnel discussing simulated scenarios in an informal setting.

<sup>2</sup> Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) regulates the safety and health of the employees involved in management and cleanup operations at uncontrolled hazardous waste sites, employees engaged in certain hazardous waste sites, and employees engaged in certain hazardous waste.

<sup>3</sup> Incident Command System (ICS) is a standardized on-site management system designed to enable effective, efficient incident management by integrating a combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure.

## EMERGENCY RESPONSE

In an emergency, our local field staff will handle direct response activities such as isolation of the emergency, containment and control, co-ordination of response activities and restoration of service.

### Incident Command System (ICS)

The Incident Command System (ICS) is an internationally recognized and standardized on-scene, all-hazard incident management system used by TransCanada to manage the emergency response process. ICS allows us to adopt an integrated organizational structure to work jointly with public safety agencies, emergency services responders, regulators, and other stakeholders to achieve common goals through the establishment of predefined response objectives.

The ICS structure is a flexible emergency response structure which can grow or decrease depending on the severity of the incident.

### **Emergency Operations Centres (EOC)**

Our Emergency Operations Centres (EOC) are designed and equipped to support emergency response personnel at an emergency site. The EOCs' role is to directly support all activities at the scene through communications, resource deployment and technical expertise.

### **CEPA Mutual Assistance**

On January 1, 2014, TransCanada entered into a Mutual Emergency Assistance Agreement (MEAA) with all other member companies of CEPA. The purpose of this MEAA is to provide a mechanism for CEPA members to request Emergency Assistance from one another in the event of an emergency.

More information on the MEAA is available on [www.cepa.com](http://www.cepa.com).

### **EMERGENCY RESPONSE COMMUNITY INFORMATION CENTRES (CIC)**

In 2014, TransCanada developed and implemented a successful Community Information Centre (CIC) initiative to serve as an outreach hub for keeping communities informed during emergency incidents. Building on best practices developed over decades of community engagement, CICs launched thus far have welcomed hundreds of stakeholders, and feedback has been extremely positive.

TransCanada updated and refined its CIC process in 2015, but did not require any CIC launches in response to incidents.

### **2015 INCIDENTS**

Safety of the public, employees, contractors and the environment is a top priority at TransCanada, and we are intent on driving toward the ultimate goal of zero incidents.

TransCanada experienced two notable incidents on our pipeline networks in 2015. Through the effective execution of TransCanada's emergency preparedness and response plans, employees successfully managed the impacts.

All lines have since been safely returned to service with no injuries or significant environmental impacts.

- On May 12, 2015, gas control provided notification of a pressure drop on part of the NOVA Gas Transmission System. It was discovered that a 12-inch natural gas pipeline leak occurred on the Suffield Lateral Line, 20 kilometres (12 miles) north of Medicine Hat, Alberta, and that the initial gas release resulted in the release of sediment from the bank of the South Saskatchewan River. There were no injuries or third-party property damages as a result of the leak. Personnel were immediately dispatched to the area to isolate lines, provide environmental support and conduct an assessment of potential effects to the river.



During the past 15 years, **TransCanada has donated over \$5.5 million to emergency responders** across North America, including more than \$900,000 in 2015. This includes larger partnerships with organizations such as the International Association of Fire Chiefs, Alberta Fire Chiefs Association and the Alberta Shock Trauma Air Rescue Service (STARS) Foundation.



No one takes the safety of our pipelines more seriously than we do, which is why **we focused on building meaningful partnerships** and engaging face-to-face with emergency responders in 2015.

**These outreach efforts go above and beyond the regulatory requirements** to ensure we protect the public, emergency responders, property and the environment.

In 2015, we held more than 60 face-to-face meetings and Emergency Management System presentations with emergency responders. Of these, 23 were Energy East Safety and Emergency Response Safety Days presentations and 13 were town halls in partnership with the International Association of Fire Chiefs.

**We also donated over \$900,000 to emergency responders across North America**, including over \$300,000 invested in Energy East safety and emergency response partnerships.

- Early morning on June 29, 2015, TransCanada responded to a drop in pressure on its ANR natural gas pipeline system in Osceola County, southwest of Reed City, Michigan. TransCanada and local emergency personnel responded to the event and worked collaboratively to safely address the situation, including securing the area. Our highly trained and experienced emergency response team quickly mobilized and was able to safely assess the event and confirm that there were no injuries or casualties, and that the incident site was isolated and not blowing gas.

TransCanada has conducted comprehensive failure investigations into both incidents, as it does with any pipeline and facility incident. These investigations identify causal and contributing factors in order to improve all our asset integrity programs and to pursue the goal of preventing all incidents.

## OCCUPATIONAL HEALTH AND SAFETY

TransCanada takes a holistic approach to occupational health and safety, with multiple complementary programs that address the workplace and home, the individual and family, and our employees and contractors. We allow no compromise in the welfare of employees and contractors, making health and safety integral to planning and execution, and a priority in the field, in our offices and in the boardroom.

## SAFETY MANAGEMENT SYSTEMS AND PROGRAMS

TransCanada's Operational Management System (TOMS) framework, a project initiated in 2016, will establish a structure under which our corporate health and safety programs are developed, maintained and continually improved. For example,

TOMS will establish expectations for worker competency that ensure safety training and certification, and include regular refreshers and updates as part of the job. This includes training in hazardous material handling, first aid/CPR, fire and driver training, and other training and certifications demanded by specific jobs. See the Management Systems section on page 10 for more information on TOMS.

By measuring our safety programs and initiatives, we know our efforts are making a difference.

### Safety Culture

A key component of TransCanada's company-wide strategy to make health, safety and environment a top-of-mind and around-the-clock value is our commitment to fostering a robust and positive safety culture. By continually modelling and reinforcing a strong safety culture, along with effective processes and systems, we strive towards our 'zero is real' goal as we won't be satisfied with anything less than a zero-incident workplace. Our safety culture includes:

- Ensuring safety is an integral part of our decisions
- Combatting complacency through relentless prevention of incidents
- Carrying work out with the right people, time, tools and equipment
- Showing safety leadership through our actions and priorities
- Empowering workers to take personal responsibility for safety
- Learning from our mistakes and the mistakes of others
- Being responsive to any risks resulting from changing business conditions

Photo at right: Our employees are trained to ensure a quick, effective and coordinated response to any pipeline emergency to prevent harm to our employees, the public, property and the environment.

# LEADING SAFETY RECORD

For the second year in a row, in 2015 we received the Gold Safety Days Away Restricted Absence Award from Liberty Mutual.

Our Safety 24/7 program encourages employees to continue to foster this culture away from work, by sharing off-the-job incidents, supporting extended family safety training and providing information on a range of safety topics for home, recreation and protecting the environment.

### **Safety Hazard Awareness Reporting Events**

Our ability to track incidents over time – including near hits – gives us a bird’s-eye view of trends so that we can prevent potentially significant incidents from occurring. Safety Hazard Awareness Reporting Events (SHARE) are proactive incident or issue notifications that focus on near hits, Safety 24/7, safe acts and safe observations.

At TransCanada, we believe that proactive reporting, both on and off the job, instils a safety culture of looking after yourself and others around you. We share information via the HSE Management reporting system, which is accessible to all employees. The information may generate a hazard alert (material defect, or activity that under certain circumstances may cause injury), business process improvement or simply be an opportunity to share lessons that TransCanada colleagues may find useful.

2015 SHARE reporting provided a wealth of actionable information:

- Employees and contractors reported 24,423 proactive events involving near hits, safe acts, safety observations and Safety 24/7s (collectively, SHARE reports)
- SHARE reports included identification and/or removal of hazards, such as removing potential falling hazards, and stopping fellow colleagues from continuing work to point out hazards or improve working conditions to eliminate the potential for injury
- Employees and contractors reported 1,579 near hits, 54 per cent (848) of which were reported by contractors
- On average, 1.46 events were reported per 2,000 hours worked (based on combined employee and contractor SHARE counts and year-to-date hours reported)

### **EMPLOYEE AND CONTRACTOR SAFETY**

Throughout TransCanada, employee and contractor safety is a priority. Safe, supportive workplace environments, procedures, training, tools and resources all work toward preventing injuries and incidents. The company’s Contractor Safety Management Program ensures that TransCanada only does business with organizations that share its values and commitment to maintaining a safe workplace and reducing occupational injuries and illnesses.

We use internal and external resources to focus on key areas of health promotion and illness prevention, short- and long-term disability management, employee and family assistance counselling programs, illness/injury absence reporting and health issue management.

Our overall philosophy and approach to developing corporate safety targets is to set them such that we drive continuous improvement year after year. In 2015, TransCanada continued to have industry-leading safety performance. TransCanada will always strive for continuous improvement as we are committed to our goal of zero incidents so that everyone goes home safely every day.

### **Total Recordable Case Rate (TRCR)**

refers to the number of recordable cases related to a common exposure base of 100 full-time employees. Recordable Cases are all work-related deaths and illnesses, and those work-related injuries which result in loss of consciousness, restriction of work or motion, transfer to another job, or require medical treatment beyond first aid. (Bureau of Labor Statistics, Record Keeping Guidelines for Occupational Injuries and Illnesses).

### **Away From Work Case Rate (AWCR)**

refers to an incident, which results in an injury or illness that prevents an employee from returning to work on the next scheduled shift. The number of away from work cases, where the employee would have worked but could not because of occupational injury or illness, is related to a common exposure base of 100 full-time workers. This performance indicator is often referred to as the lost-time case rate. (Bureau of Labor Statistics, Record Keeping Guidelines for Occupational Injuries and Illnesses).

## TUSCARORA PIPELINE'S PERFECT SAFETY RECORD

### Vehicle Incident Frequency Rate (VIFR)

refers to the number of recordable vehicle incidents related to a common exposure base of 1,000,000 kilometres (621,400 miles) driven. A recordable vehicle incident is any incident (regardless of fault) involving a fleet or rental motor vehicle which results in an injury to any person or damage to any vehicle or property, unless the vehicle was safely and legally parked at the time of the incident. (ANSI standard D. 16.1 – 1989 “Manual on Classification of Motor Vehicle Traffic Accidents” – 5th Edition).

### High Potential Incidents (HIPO)

refers to incidents with a high potential to result in a serious, debilitating injury to the worker related to a common exposure base of 100 full-time employees. Examples of high potential incidents include, but are not limited to, high speed vehicle incidents, vehicle rollovers, high voltage or high pressure incidents, injuries to the head, fall from heights, etc.

In 2015, there were no employee fatalities.

Beginning in 2015, TransCanada is disclosing contractor fatalities based on incidents that occurred under TransCanada's care and control. There were no contractor fatalities in 2015.

Every company's goal is to have a perfect safety record. But is perfection really possible? In a word: Yes.

Consider Tuscarora Gas Transmission, an interstate natural gas transportation system operated by TransCanada in California and Nevada. **After 20 years in operation, the Tuscarora pipeline has not only logged zero lost-time incidents, it hasn't had a single recordable event.**

Admittedly, at no point in its history has the pipeline had enough employees to field a football team, numbering between four and nine full-time employees at any given time over the last two decades. But **given the nature of pipeline work** and the rugged and often snow-covered terrain employees must travel every day to do their jobs, **the record is nothing short of astounding.**

Tuscarora extends 490 kilometres (229 miles) southward from the Oregon-California border at Malin across mountainous northern California and into Nevada's High Desert, where it interconnects with Paiute Pipeline near Wadsworth, Nevada.

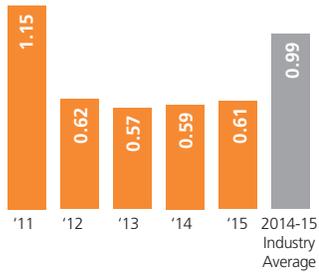


“Given the length of the pipeline and the small crew, we spend a lot of time working alone,” says Kevin Walker, a multi-skilled technician who has worked at Tuscarora since it went into service in 1995. “But we always know where the other guy is headed...**You always know the team has your back.**”

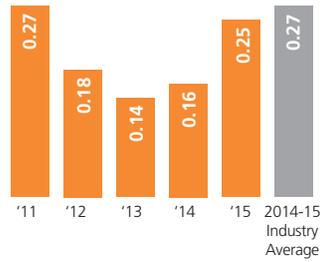
At TransCanada, **the reality of the overall safety program** – from extensive training to proper planning and efficient execution – **is that we can and will do better.** Our overall philosophy and approach to developing corporate safety targets is to set them such that we drive continuous improvement year after year.

## EMPLOYEE SAFETY

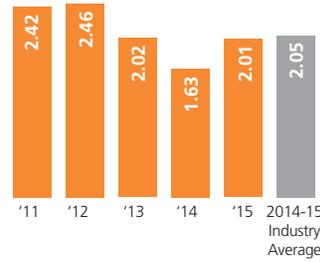
Total Recordable Case Rate (TRCR)



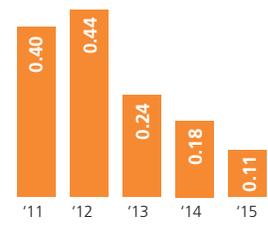
Away from Work Case Rate (AWCR)



Vehicle Incident Frequency Rate (VIFR)

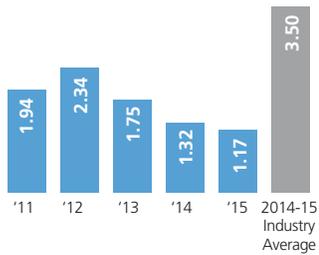


High Potential Incidents Rate (HIPO)

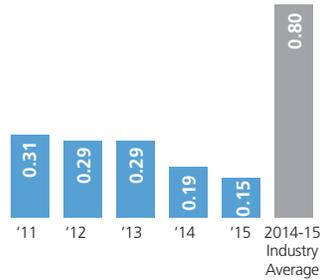


## CONTRACTOR SAFETY

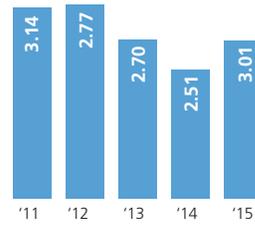
Total Recordable Case Rate (TRCR)



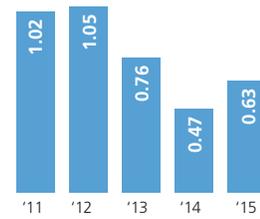
Away from Work Case Rate (AWCR)



Vehicle Incident Frequency Rate (VIFR)



High Potential Incidents Rate (HIPO)



Industrial Averages are combined data for 2014 and 2015 and are derived from the following sources:

- Canadian Energy Pipeline Association
- Canadian Gas Association
- American Gas Association
- Alberta Government Construction & Construction Trade Services
- Bureau of Labor Statistics

Industry Associations do not track High Potential Incident Rates or Contractor Vehicle Incidents. These indicators are tracked internally by TransCanada to identify those incidents that have a high potential to injure personnel, so that continuous improvement mechanisms can be applied and to track how well a contractor performs.

Photo at right: At TransCanada, we are committed to working collaboratively with our stakeholders and ensuring they are engaged and respected throughout the life cycle of all our projects.

# WORKING TOGETHER



At the heart of TransCanada's competitive advantage are our employees and we owe much of our success to the fact that we have a highly talented and skilled workforce. Our values of integrity, collaboration, responsibility and innovation guide us in our interactions with each other and with our stakeholders.

**WENDY HANRAHAN**

Executive Vice-President, Corporate Services

## SOCIETY

**Making sure stakeholders like you are engaged and respected is critical to TransCanada's success. We know that transparently sharing information and seeking your input will result in better plans – for us, for you and for our communities as a whole. TransCanada's values – integrity, responsibility, collaboration and innovation – lay the foundation for how we work with each other and with you.**

While we have strong relationships with thousands of communities and landowners backed by generations of co-operation and trust, we are also committed to earning public confidence from those communities we haven't worked with yet.

We are committed to collaborating with, and listening to, our stakeholders to learn what matters to you and incorporate that into our plans.

## **RESPONSIBLE STAKEHOLDER RELATIONS**

The fundamental role of any business is to fulfil a need for society. For TransCanada, that means delivering the natural gas that heats your home, the liquids that fuel your transportation and the electricity that powers your technology and lights the way. But after 65 years of doing business, and with more than 70,000 neighbours across our three operating countries, we know there's more to being a good business than just supplying the energy North Americans need.

## **STAKEHOLDER ENGAGEMENT – IN ACTION**

### **Breaking Ground on the Napanee Generating Station**

"We are very pleased to have TransCanada in our community. From day 1, they have demonstrated great corporate citizenship which has made working with them a pleasure."

Gordon Schermerhorn, the mayor of the Town of Greater Napanee, used these words to describe his experience working with TransCanada at the June 2015 groundbreaking event for the Napanee Generating Station (NGS) project.

The mayor attended the groundbreaking event and reception with other community leaders from the Town of Greater Napanee, Lennox and Addington County, Loyalist Township and the Mohawks of the Bay of Quinte to commemorate the construction of NGS.

This milestone came after more than two years of engagement with the Town of Greater Napanee. TransCanada employees developed meaningful relationships with local officials, stakeholders and residents to ensure that project plans were communicated and feedback was heard so the facility will one day become an integrated part of the community.

"The construction phase of the Napanee Generating Station is a key milestone for the project and for TransCanada.

Consultation and an ongoing two-way dialogue were important parts of the process; we wouldn't be where we are today if it wasn't for the town's willingness to work with us in a fair and transparent manner," says Bill Taylor, executive vice-president and president, TransCanada Energy.

As part of our commitment to the communities where we construct and operate projects, in September 2014, TransCanada and the town signed a Community Host Agreement which will provide \$2 million in funding to the town for community development projects over the next 20 years.

In addition to the community funding commitment, other key highlights of the agreement include:

- A commitment to provide qualified town residents with employment, contracting and supplier opportunities throughout the life cycle of the NGS. A job fair was held in early 2015 and vendor pre-qualification sessions will be hosted in late 2016. In addition, all TransCanada employment opportunities are advertised locally and posted on NGS's website. More than 750 people will be working at the site during the height of construction.
- Three full scholarships – two for eligible local high-school graduates and one for a First Nation student – for students

who have received admission offers from the Power Engineering program at Cambrian College.

- A commitment for TransCanada to provide regular reporting to the town council on the status of the NGS, and its compliance to meet regulatory requirements and contractual commitments.
- A commitment to reimburse the town for NGS development and construction-related expenses.

Community projects funding will be distributed through the community development committee made up of representatives from TransCanada and the town. Approved projects will align with TransCanada's community investment criteria in the three corporate focus areas of safety, community or environment. Projects must also have visibility in the community, create positive impacts and address identified needs. A study has been conducted and identifies gaps in current funding while also prioritizing community needs.

Furthermore, as part of our commitment to be a good neighbour, and as outlined in the Community Host Agreement, TransCanada has established two additional committees to ensure continued communication and ongoing engagement. The community liaison committee provides a forum for engagement between community

members and TransCanada about project updates and also works to address any potential concerns raised by residents. The construction co-ordination committee is comprised of municipal and provincial agencies, and TransCanada, who meet to review their respective upcoming project activities so that local planning and co-ordination can occur.

The \$1.2-billion Napanee Generating Station will be a highly efficient, combined-cycle natural-gas-fired facility generating 900 megawatts of clean energy under a 20-year supply contract with the Independent Electricity System Operator. The facility will use the latest in generating and environmental control technology, making it one of the most efficient and cleanest power generation facilities in Ontario.

The station is expected to begin operating in December 2018 and will play a vital role in Ontario's power supply mix while ensuring reliable power supplies. Once operational, the facility will supply energy to approximately 900,000 homes.

Visit TransCanada's blog at [blog.transcanada.com](http://blog.transcanada.com) for more information on the Napanee groundbreaking event and our engagement with the Town of Greater Napanee.



In 2014, we filed the most comprehensive regulatory application in our company's history for Energy East – **the result of more than 18 months** of planning, field work and extensive **stakeholder engagement consultation with more than 7,000 community members, 5,500 landowners and 155 First Nations and Métis** communities across six provinces.

Since starting the project, Energy East Community Relations team **has held 1,650 meetings with municipal governments and administrators**, first responders, community residents and other local organizations to share project information and gather feedback. In addition, **the project has hosted 138 open houses and Safety & Emergency Response Information Day events** to share information directly with community members, and participated in more than 125 community and industry events and exhibitions. This extensive engagement effort **has resulted in more than 700 pipeline route and scope changes** to reflect the input and concerns of our stakeholders.

On projects like the Energy East pipeline, we have faced some opposition that has been well documented in the media. Our approach has always been consistent: we need to listen closely to the needs and concerns of our stakeholders and communities, and respond with positive solutions in a way that meets people's energy needs but is also done in a way that people can trust.

At the core of stakeholder engagement is building positive relationships and trust. This enhances TransCanada's business performance by managing expectations, minimizing risk, identifying opportunities, and enhancing the quality of operating and development decisions.

It improves our business outcomes and, in return, stakeholders can express concerns and offer input in a collaborative manner with TransCanada.

Please see the Risks and Risk Management section on page 10 for more information on reputation and relationship risks.

## OUR APPROACH TO STAKEHOLDER ENGAGEMENT

At TransCanada, we recognize that excellence in stakeholder engagement helps deliver value to the business, and we want to ensure it's done in a socially and environmentally responsible manner.

The Stakeholder Engagement Commitment Statement available on [www.transcanada.com](http://www.transcanada.com) outlines our promise to stakeholders and provides guiding principles that employees and contractors are expected to follow when interacting with stakeholders.

Our four core values of integrity, collaboration, responsibility and innovation are at the heart of our commitment to stakeholder engagement. These values guide us in our interactions with our stakeholders. TransCanada generally defines stakeholders as those people or groups who significantly affect, or who may be affected by, our business activities. See the About You section on page 8 for more information on our identified stakeholders.

We strive to engage stakeholders early and often. Engaging with stakeholders means listening, providing accurate information, and responding to stakeholder interests in a prompt and consistent manner. TransCanada uses two-way communication processes with stakeholders to assist us in reaching high-quality business decisions.

The following principles are used as a filter to test and align engagement activities:

- We identify and consider the perspectives of our stakeholders
- We are visible, present and approachable in the community
- We recognize that diverse thoughts, opinions and experiences contribute to better decisions and outcomes

- We take ownership and accountability for our decisions and outcomes
- We track, measure and report on our performance to learn and improve

## Stakeholder Engagement Framework and Policies

Our Capital Project Management System (CPMS) stakeholder engagement model is a company-wide framework that contains a thoughtful and thorough approach to engagement. At the time of acquisition or new construction and for ongoing maintenance and capital construction upgrades, the CPMS stakeholder engagement model is applied. In the spirit of continuous improvement, we document the lessons learned from our engagement activities and share these learnings between project teams and operations staff.

All our assets require local community engagement through all phases of the asset's life cycle.

We support open communication between TransCanada and the public, and we work with the scientific community, policy-makers and public interest groups that research, develop and implement standards for health, safety and environmental protection. We encourage reporting of all health, safety and environment-related hazards, potential hazards, near-hits and incidents. We take every report seriously, investigate to identify facts and ensure immunity for good-faith reporting of all incidents and issues. For more information on our Health, Safety and Environment Management System, see page 13.

Potential environmental and socio-economic effects are discussed in person at local open houses hosted by project staff and are also available to our communities through our project websites and government websites.

In addition, our Stakeholder Engagement Commitment Statement; Health, Safety and Environment Commitment Statement; Aboriginal Relations policy; and Native American Relations policy inform our practices and guide our actions. These policies are publicly available on [www.transcanada.com](http://www.transcanada.com).

It is TransCanada's goal to be a good neighbour in all the communities where we live, work and do business. We are committed to the ongoing engagement with stakeholders for the purpose of project development, asset maintenance, community safety outreach, emergency response plans and community investment.

### Hearing from You

TransCanada engages regularly with our stakeholders and communities. We share information about our plans and activities while listening to stakeholder views. We gain valuable insight from these discussions and use this information in our project planning, development, and operations activities.

When it comes to new projects, public involvement may involve one-on-one discussions, public presentations, or open houses with affected stakeholders. We supplement these face-to-face meetings with written materials and other forms of communication such as fact sheets, brochures, websites, email, and toll-free

telephone lines. Our goal is to develop projects in a manner that is publicly supported and aligned with our business objectives and values.

Contact information for our landowner relations, community relations and public awareness departments is available on [www.transcanada.com](http://www.transcanada.com) and on our project websites.

### COMMUNITY INVESTMENT

At TransCanada, we don't just build energy infrastructure. We also build relationships.

Whether it's partnering with community groups, supporting local initiatives or encouraging our employees to be involved in their neighbourhoods, the goal of our Community Investment Program is to build strong and vibrant communities across North America.

Giving back to the communities where we operate always has been and always will be part of our everyday culture. It's all part of being an employer of choice, a good neighbour and a trusted community partner.

### Defining Community Investment

For TransCanada, community investment is a voluntary contribution on behalf of the company in support of a not-for-profit, registered charity or social enterprise that generates clear and demonstrable value to the communities where we live and work.

We concentrate our efforts in three focus areas: safety, community and environment.



TransCanada is committed to the safety and well-being of the communities near our operations. **Since 2013, TransCanada has donated US\$825,000 to the International Association of Fire Chiefs (IAFC).** This partnership supports the delivery of cutting-edge training to 1.2 million firefighters and emergency responders throughout North America, via access to the Pipeline Training Portal at <http://pipelines.training>, which provides online 'best in class' emergency response pipeline training to first responders.

Also through the partnership, TransCanada continues to engage with the organization's members to promote dialogue and educate first responders about TransCanada's approach to emergency response through an IAFC town hall series about pipeline emergency preparedness. **In 2015, TransCanada and IAFC hosted nine regional town halls, as well as presented at three conferences.** As part of the 2016 series, TransCanada and IAFC will host 10 town halls and present at three conferences across the U.S.



Thanks to the generosity of employees and in-house contractors from across the company, TransCanada's second annual giving, volunteering and engagement campaign (entitled Get Empowered) raised over \$730,000 for registered charities in Canada and the U.S. **in just one month. That's a 44 per cent increase over the previous year's campaign.** Money wasn't the only thing employees and in-house contractors gave during the month – a total of 4,934 volunteer hours were logged, which is an 82 per cent increase from the 2014 campaign.

**Safety** – We are committed to the safety and well-being of the communities near our operations. We fund initiatives that enable emergency personnel to respond quickly and effectively to local needs and focus on emergency preparedness, accident prevention and education, and training.

**Community** – We are committed to supporting the building of strong and vibrant communities. We support organizations and initiatives that bring communities together, develop leadership and engage citizens.

**Environment** – We are committed to protecting the environment. We work with national and local organizations to conserve important habitats, protect species at risk and educate individuals about the importance of the environment.

Examples of our community partnerships in action can be found throughout this report and on TransCanada's blog at [blog.transcanada.com](http://blog.transcanada.com).

## Employee Giving and Volunteering

In 2015, TransCanada continued to see growth in Empower, our giving and volunteering program. Through Empower, we support and encourage personnel to give back to their communities in ways that resonate with them personally by:

- Matching their charitable donations
- Matching volunteer time with financial contributions to support the causes they care about
- Providing opportunities for them to volunteer in their communities
- Providing support for team volunteering and fundraising

## STAKEHOLDER ENGAGEMENT – IN ACTION

### Sharing Information and Hearing Input on Coastal GasLink

There are a number of proposed pipelines in north central British Columbia (B.C.), but according to Houston, B.C. Mayor Shane Brienen, TransCanada's Coastal GasLink pipeline project team is setting the standard for engagement when it comes to ensuring residents in the town are informed and able to offer feedback about the project.

"Coastal GasLink is doing it right. You have been engaging with us since the beginning and have been open and transparent and always answer questions honestly," says Mayor Brienen.

The Coastal GasLink project team has conducted a number of northern B.C. tours to continue to gather stakeholder input and share new information with communities along the pipeline route.

Local residents came out to share their thoughts about the project, but also were interested to learn more about what the project meant for them in terms of benefits, job opportunities, contracting opportunities, safety, security, project timelines and construction planning and routing.

"These information sessions are so valuable to us. They give us the chance to share information, sit down and talk with people, and hear what's on their minds," says Greg Cano, Coastal GasLink's project planning and execution director. "We want to continue the dialogue; we want to hear feedback."

Learn more about our engagement with local communities on TransCanada's blog at [blog.transcanada.com](http://blog.transcanada.com).

Photo at right: TransCanada employees and contractors often volunteer their time to help with a variety of Habitat for Humanity projects across Canada and the U.S.



 TransCanada

In 2015, our employees donated nearly \$2.6 million and registered more than 9,100 volunteer hours to the causes they care about through our giving and volunteering program.

# GIVING BACK

## BREAKFAST CLUB OF CANADA

**The foundation for a good education starts early.** That's why TransCanada has partnered with Breakfast Club of Canada to help bring its breakfast program to schools across northern B.C. and Ontario.

**Breakfast Club of Canada is a national organization that delivers healthy breakfasts in a safe and supportive environment to vulnerable children in communities across Canada.** The club is active in 1,300 schools across the country with breakfasts offered to each child at the school in order to avoid creating a stigma associated with poverty or with receiving the breakfast. They also offer the program in 72 First Nation, Métis and Inuit schools across the country.

Since 2014, TransCanada has donated over \$320,000 to Breakfast Club of Canada to launch or sustain the program in 10 schools. Our partnership is part of TransCanada's Education and Training Program, which supports educational initiatives that address a variety of developmental needs. These needs are often identified by communities and can range from programs that support early childhood development to technical training at post-secondary institutions.

As a neighbour to the communities in and around our operations and projects areas, TransCanada believes we have a role to play in ensuring youth receive the nutrition they need to succeed.

Canadian and U.S. employees, combined with TransCanada's matching contribution, donated more than \$2.57 million to charities across North America to support the communities where they live and work in 2015. In addition to these generous donations, employees logged 9,151 volunteer hours with registered charities in their communities.

Despite tough economic times, TransCanada saw a 14 per cent increase in giving in 2015. Year-over-year, participation in the program increased by four per cent in Canada and five per cent in the U.S.

For 2016, we hope to enable our online platform for giving and volunteering to support employees and contractors in Mexico.

Please visit TransCanada's blog at [blog.transcanada.com](http://blog.transcanada.com) for examples of our giving and volunteering program, Empower, in action.

### 2015 COMMUNITY INVESTMENT HIGHLIGHTS

Community Investments – direct only (CAD\$ M)	14.7
Investments by Motivation (percentage of total portfolio)	
Social Investments	50
Commercial Investments	11
Philanthropic Investments	39
In-Kind Giving <sup>1</sup> (CAD\$ M)	0.34
Community Investment including funds leveraged through outside sources <sup>2</sup> (CAD\$ M)	20.4
Investments as a percentage of total revenue	0.15
Employee and contractor donations (CAD\$ M)	0.76
Company donations matching employee and contractor donations (CAD\$ M)	1.81
Volunteer hours logged by employees and contractors (# of hours)	9,151
During non-paid time	7,531
During paid work time	1,620
Value of volunteer hours during paid work time (CAD\$)	76,228

<sup>1</sup> In-Kind Giving are donations of equipment or resources to support community programs.

<sup>2</sup> This figure takes into consideration contributions to community projects that can be directly linked to TransCanada's involvement (but are not included in the investment cost), including additional investment generated from other companies, governments and TransCanada employees.

### Annual Community Investment Audit

TransCanada is a founding and active member of London Benchmarking Group (LBG) Canada, whose mission is to improve the management, measurement and reporting of community investment. Each year, TransCanada participates in a detailed, line-by-line third-party audit of its entire community investment portfolio.

The results enable TransCanada and external stakeholders to be confident that reported figures are accurate while also benchmarking our program against industry peers.

Despite a challenging economy, we were able to increase the amount invested directly in our communities and help generate an additional \$4 million in support from other companies, governments and TransCanada employees.

In 2015, TransCanada directed more than \$14.7 million to over 1,400 non-profit organizations across North America.

### **LBG Motivations**

These standard definitions – what LBG calls “Motivations” – explain why we made an investment and how the investment will be managed.

- **Philanthropic Investments:** One-off or intermittent donations in response to charity appeals or in support of employee charitable activities.
- **Social Investments:** Longer term, strategic involvement in community partnerships that address a specific range of social issues and are important to the company or to company stakeholders. These programs are often aligned with long-term corporate interests.
- **Commercial Initiatives:** Activities in the community that directly support a business objective, or promote or protect the commercial interest of the corporation.

### **INDIGENOUS PEOPLES**

The strength of our relationships with Indigenous communities and rights holders and the trust they have for us as a company have a direct impact on our ability to competitively build and operate our assets.

We know that making sure Indigenous communities are meaningfully engaged and respected is critical to TransCanada's

success. By transparently sharing information and seeking input from Indigenous communities, we will be able to create better project plans for us, our rights holders, stakeholders and all our communities.

### **OUR APPROACH TO INDIGENOUS RELATIONS**

In 2015, TransCanada continued to build on more than 30 years of engaging with Indigenous communities. We advanced our commitment to building and maintaining long-term relationships with Indigenous communities based on respect, trust, open communication, and recognition that many of our activities occur on traditional lands. We understand our projects have the potential to affect the lives of Indigenous people in very tangible ways. Respecting the rights of Indigenous peoples, while acknowledging and learning from Indigenous peoples' distinct relationship to the land remains integral to our work. In 2015, TransCanada engaged 376 Indigenous communities, groups and organizations in Canada and the U.S. Our commitment to meaningful engagement is further demonstrated by the 2,453 meetings our engagement practitioners held with 312 Aboriginal communities in relation to 23 projects and 21 facility projects in 2015.

TransCanada understands that our relationship with Indigenous communities is distinct from their relationship with government. At the same time, our engagement with communities continues to be informed by the rapidly evolving legal landscape and regulatory requirements in the countries where TransCanada operates, which have discrete laws pertaining to the protection of Indigenous rights and interests. In response, TransCanada

continues to monitor these changes and ensure they are reflected in our engagement with communities, as we strive not only to meet but also exceed regulatory requirements. On an ongoing basis, TransCanada also tracks developments regarding Indigenous rights at the international level.

### **MANAGEMENT APPROACH**

The Indigenous Relations (IR) group, part of TransCanada's Community and Sustainability department, oversees TransCanada's Indigenous Relations programs.

TransCanada's approach to engagement with Indigenous peoples is directed by the company's corporate values as well as TransCanada's Aboriginal Relations policy (Canada), first implemented in 2000 and revised in 2011, and our Native American Relations policy (U.S.), adopted in 2011. The policies apply to all our employees and contractors. Building on these, a key component of all projects is our commitment to provide TransCanada project staff and contractors with the knowledge and skills to engage effectively with Indigenous communities. In addition, TransCanada's Indigenous Cultural Awareness program is offered regularly to all staff and in-house contractors.

The company's Indigenous Relations strategy, approved by the executive leadership team in 2015, guides IR's work in the countries where we have business activities: Canada, the U.S. and Mexico. We continue to advance the implementation of its four pillars: engaging communities, community legacy, people and contracting and project participation.

## ENGAGING INDIGENOUS COMMUNITIES

Being regarded as a good neighbour and a trusted developer is integral to carrying out our business activities in a way that fosters an environment of mutual benefit. Where our activities may affect Indigenous rights and interests, TransCanada engages Indigenous communities, as rights holders, to ensure they have a full understanding of the project to make their own determinations of potential project effects, and works with communities to identify and mitigate project effects and seek opportunities for their economic participation.

Understanding how our activities may affect Indigenous communities and involving them in the development of mitigations of environmental and socio-economic or other potential effects is a core aspect of engagement, as our activities may limit the ability of community members to carry out traditional practices. In 2015, no human rights complaints involving Indigenous peoples were received through TransCanada's reporting procedures. TransCanada facilitates community participation in field studies to identify and address concerns and provides resources for communities to conduct Traditional Land Use studies that determine how planned activities may affect current traditional uses. This information is incorporated into project planning and decision-making and is included in the regulatory process.

TransCanada supports the participation of Indigenous communities within the regulatory process through a variety of means, including resource capacity funding that enables the review of project information and community meetings.

On certain projects, capacity funding has enabled the Indigenous community to hire additional staff assigned to our projects. Where conditions emerge from the regulatory process, TransCanada also makes best efforts to involve Indigenous communities in activities that result from regulatory conditions.

The following examples demonstrate TransCanada's engagement process:

- On the Vaughn Mainline Expansion project in Canada, TransCanada facilitated the participation of monitors for three Indigenous communities that expressed interest in participating in archeological studies of the project area even though it was not a regulatory requirement. Community participation resulted in identification of sites of spiritual and cultural significance to the communities and mitigation measures to prevent disturbance to the identified sites. TransCanada's efforts were acknowledged in the regulatory process.
- In the U.S., we worked with community leaders to develop a workshop on how TransCanada undertakes its work and pipelining for tribal elders.
- The Prince Rupert Gas Transmission project made substantial changes to the route in response to First Nation and stakeholder input, which has included both marine and land-based pipeline.
- On the Coastal GasLink pipeline project, we worked with the B.C. Environmental Assessment Office (EAO) working group, which included First Nation representatives, to develop an Invasive Plant Management Plan.

Photo at right: We seek input from Indigenous communities, benefiting from their cultural and traditional ecological knowledge, in order to build better project plans for everyone involved.

# RESPECTING TRADITIONAL KNOWLEDGE



TransCanada received “Industry Leader” and “Industry Mover” awards and achieved a gold class distinction in RobecoSAM’s Sustainability Yearbook 2016 based on our 2014 CSR performance.

- Also on the Coastal GasLink pipeline project, as many as 80 Aboriginal participants from communities in northern B.C. worked alongside our environmental scientists to collect immense amounts of data about the land, soils, vegetation, waterways, wildlife and history of this region. TransCanada benefited from their insights, which helped us understand, preserve and acknowledge culturally and historically significant areas along the route that the communities respect and value. It's essential these areas are identified, respected and protected, so the project can be designed, constructed and operated in a safe and environmentally responsible way that takes into account their views. Our 2015 field programs in Wet'suwet'en Territory included over 11,000 hours of participation by local Wet'suwet'en people who shared cultural and traditional ecological knowledge.

## PEOPLE AND CONTRACTING

TransCanada is committed to providing business, employment and training opportunities throughout all phases of our projects to the Indigenous communities on whose lands we operate. We work collaboratively with Indigenous communities to create opportunities that yield mutual benefits.

In 2015, TransCanada generated nearly \$168 million in work for Indigenous businesses or their joint-venture partners in Canada and the U.S. for goods, contract services and employment on TransCanada projects and operations.

## INDIGENOUS ENGAGEMENT – IN ACTION

### Respect and mutual benefit lead to project agreements for Coastal GasLink

TransCanada's relationship with Indigenous groups can be captured in one word – respect. Respect for the distinct history, cultures and legal status of Indigenous groups and their unique relationship to the land. This, combined with responsiveness to community interests, is the pillar upon which TransCanada has built enduring relationships that support specific local needs and TransCanada's business objectives.

In northern B.C. TransCanada has been working with First Nations for a number of years to establish mutually beneficial agreements with communities along our Coastal GasLink pipeline project route from Dawson Creek to Kitimat. To date, we are proud to announce that the Coastal GasLink pipeline project has signed project agreements with 13 northern B.C. First Nations.

Project agreements that frame ongoing community relationships are designed to meet the individual circumstances of each community and are another way we demonstrate our commitment to mutually built partnerships.

As of early May 2016, we have project agreements with 13 First Nations: Kitselas First Nation, McLeod Lake Indian

Band, Skin Tye First Nation, Nee Tahí Buhn Indian Band, Yekooche First Nation, Wet'suwet'en First Nation, Doig River First Nation, Halfway River First Nation, Blueberry River First Nations, Burns Lake Indian Band, Lheidli T'enneh First Nation, Nadleh Whut'en First Nation and West Moberly First Nations. These agreements are a positive step for the project and these First Nations, whose traditional and treaty territories are located along the proposed Coastal GasLink natural gas pipeline route.

"These agreements reinforce the strong relationships we have built with these First Nations communities, and their willingness to participate in the many benefits this project will bring to their people, both today and well into the future," says Rick Gateman, president, Coastal GasLink pipeline project. "This isn't a choice between economics and culture, environment and a traditional way of life for First Nations communities. These agreements demonstrate that we can show First Nations communities that they can enjoy economic benefits from the project while they practice and live their way of life."

Read more about Coastal GasLink on TransCanada's blog at [blog.transcanada.com](http://blog.transcanada.com) or the project website at [www.coastalgaslink.com](http://www.coastalgaslink.com).

## People

The company is developing an Indigenous employment and training program that includes project-specific plans to support the participation of Indigenous peoples. Education and training investments are tailored to address the needs and priorities of the communities where we do business.

The following are some examples of how educating and training is making a difference in our communities and for our projects.

- The 2014 multi-agency training initiative with Whitefish Lake First Nation and Buffalo Lake Métis Settlement in Alberta led to the direct employment of 22 of the 28 participants with TransCanada's contractors in 2015.
- In northeast B.C., communities expressed a need for foundational skills programs that contribute to building long-term capacity and enhancing employability. In response, TransCanada supported the Obair Economic Society and the Moberly Academic Program to provide skills such as mathematics, literacy upgrading, computer training and financial management skills for 28 participants from regional Indigenous communities. Upon successful completion, TransCanada will connect trainees to our project general contractors to explore potential employment opportunities. Successful trainees will also be eligible candidates for TransCanada's North Montney pipeline project Aboriginal construction training program.
- On the Prince Rupert Gas Transmission project, TransCanada partnered with the Tribal Resources Investment Corporation to offer skills development training for Aboriginal people in northwestern B.C. The Training to Employment Program will provide the essential skills needed for those participants seeking further educational skills required to work in the liquefied natural gas and other industry sectors. The program includes three, 10-week courses that were offered in 2015 and 2016 in northwest B.C. communities. TransCanada has sponsored 42 students through this program.
- The North Montney pipeline project Aboriginal construction training program will provide hands-on training in a variety of construction skills as part of our commitment to support continuous development for Indigenous people.
- Through an agreement with Northwest Community College (NWCC), Coastal GasLink recently provided funding support for 20 trainees in the field assistant program at NWCC's School of Mineral Exploration in Smithers, B.C. The students learned about wilderness navigation, emergency preparedness, first aid and wildlife awareness as well as data collection and sampling techniques. Regina Saimoto, NWCC's regional director in Smithers, notes, "Many of the certificates our students will obtain are transferable, so students can go after opportunities from exploration to mining, forestry, natural gas development and other natural resource industries."

## Contracting

In 2015, the Indigenous Relations Business Development team transitioned from the Supply Chain department to the Indigenous Relations group to anchor the "People

and Contracting" pillar of TransCanada's Indigenous Relations strategy. The team plays a critical role in building and maintaining relationships with Indigenous communities, which supports the development of reciprocal business relationships. The team meets early and often with community leadership and businesses to understand capacity and capabilities, and seeks to align community capacity to identified project requirements and qualifications. The team then works with TransCanada technical staff to align community capacity with project requirements.

In order to adapt to the unique opportunities and challenges of each TransCanada project, the "People and Contracting" pillar is based on the integration of principled supply chain methodologies with a transparent approach to interacting with Indigenous communities. On the ground, this includes the Indigenous contracting program which designates certain key activities for qualified Indigenous businesses, requirements for general contractors to meaningfully engage with local Indigenous communities and rigorous reporting requirements.

## 2015 Contracting Highlights

- Sturgeon Lake Resources, a company owned by Sturgeon Lake First Nation, did a superb job of completing a clearing contract ahead of schedule on our Simonette pipeline project.
- Kelly Lake Cree Nation partnered with Mur-Cal Oilfield Clearing Ltd., an Indigenous contracting company, to complete the clearing work for our Cutbank Pinto project ahead of schedule.

## PEOPLE AND CONTRACTING – IN ACTION

On TransCanada's Energy East pipeline, through engagement with the communities, TransCanada identified Indigenous community interest in a field worker program. In collaboration with an environmental consulting firm, Green Eagle, TransCanada implemented a field worker program that builds capacity for the communities by actively engaging Indigenous participants in the field work for project planning. In 2015, 15 participants were employed through the program from Indigenous communities across New Brunswick.

The field workers confirmed land uses, assessed human occupancy, gained an understanding of archeological surveys and learned shovel testing methods in order to complete the supplemental environmental and archeological field studies along the Energy East pipeline route. The program created exposure for the participants to obtain working knowledge of environmental and archeological surveys, as well as to act as communication conduits to the communities about the project.



Karen Paul, of Green Eagle, says, "These field studies provide opportunities for Indigenous communities to be directly involved in the work being done. Those who joined the program get to see how seriously those studies are being done and appreciate the level of commitment and respect that a non-Indigenous company like TransCanada is showing towards the environment."

The program was a success for TransCanada and had a positive impact on our relationships with the Indigenous communities. We continue to explore region-specific opportunities that align with community objectives and project needs.

For more information on Energy East and the field worker program, visit [www.energyeastpipeline.com](http://www.energyeastpipeline.com).

- Loon River Contracting, owned by Loon River First Nation, is successfully working with prime contractor Big Country Energy Services to complete a wide range of services on our Goodfish Compressor Station project.
- In 2015, on the Northern Courier pipeline project, 23 per cent of the total contracting and employment undertaken by the prime contractor was directed to contractors and employees from local Indigenous communities.
- The Grand Rapids pipeline project, a 460-kilometre (287-mile) pipeline in Alberta, achieved 18 per cent Indigenous participation in 2015. This included employment and subcontracting with regional Indigenous community businesses and their joint-venture partners.
- On TransCanada projects in 2015, seven Indigenous community joint-venture partnerships provided camps and camp services on seven projects.

## PROJECT PARTICIPATION

One way TransCanada acknowledges the legal status of Indigenous peoples and their unique relationship to the land is through agreements. We enter into agreements in the spirit of maintaining our commitments, formalizing engagement and establishing long-term relationships, while creating certainty for both parties. Agreements take many forms and reflect a number of considerations. When we enter into agreements with Indigenous communities, the agreements are confidential, which further reflects our commitment to maintaining the trust of communities.

Photo at right: We work collaboratively with Indigenous communities to create business, employment and training opportunities on projects such as Coastal GasLink pipeline project that yield mutual benefits.



In 2015, TransCanada generated nearly \$168 million in work for Indigenous businesses or their joint-venture partners in Canada and the U.S. for goods, contract services and employment on TransCanada's projects and operations.

# SUPPORTING SUCCESSFUL COMMUNITIES

In addition, agreements establish a framework for advancing discussions related to mutual interests that can include defining the engagement process, economic opportunities, community legacy funds and land stewardship.

## COMMUNITY LEGACY

The footprint of TransCanada's activities is multi-generational and so is our commitment to maintaining positive relationships for the duration of our activities.

The community legacy pillar of our Indigenous Relations strategy embraces innovation as the starting point to progress areas of mutual interest and contributes to efforts to build sustainable, healthy and vibrant communities. Indigenous Relations' community investment initiatives respond to a wide range of circumstances that constitute the daily reality of Indigenous communities. This ranges from meeting basic needs, such as heat and potable water, to supporting initiatives to strengthen the institutional capacity of community governance.

For example, in the U.S., TransCanada has sponsored a variety of community events, cultural preservation activities, sporting events and school programs on the reservations. Play Days are held in several U.S. reservation communities throughout the summer, which include games and activities for children of all ages.

In 2015, Energy East sponsored the Bingwi Neyaashi Anishinaabek Back to School Program. TransCanada funding provided the youth with backpacks and school supplies in an effort to promote confidence for children returning to school in the fall. The Energy East team sponsored the Nokiiwin Tribal Council's Health and Safety Conference, which included discussion on topics such as violence, outdoor safety and mental wellness. During the conference, the Nokiiwin Tribal Council, which represents six communities in northern Ontario, developed a tool kit that reflects the Seven Grandfather Teachings and medicine wheel methodology which was shared with community partners.

As an Indigenous-owned business, Getumdone Contracting Ltd. provided an important link between Coastal GasLink and Aboriginal communities. Getumdone provided support for Coastal GasLink pipeline project environmental field studies as well as training services for potential project employees, including work readiness courses, outfitting, and introductory work experience. Getumdone employed more than 50 people on behalf of Coastal GasLink, with a better than 90 per cent rate of Aboriginal employment.

"TransCanada and Coastal GasLink have been exceptional in the way they deal with First Nations people. They really listen and I think they care, and they're willing to incorporate the needs and concerns of local Aboriginal people into their project planning and strategy," says Getumdone co-owner Chrisann Boucher. Read more about local Indigenous engagement at [www.coastalgaslink.com](http://www.coastalgaslink.com).

In 2015, the Eastern Mainline project contributed to the restoration of the historic Christ Church on the Tyendinaga Reserve in Ontario. Built in 1843, the church is one of only six Royal Chapels outside of the United Kingdom. The Mohawks of the Bay of Quinte use the facility not only as a place of worship but also as a community resource centre.

TransCanada has been a long-term sponsor of the Stay in School Program which works with nine northeast B.C. communities to encourage, reward and celebrate Aboriginal youth who complete their academic year of school. Recognition of students includes providing certificates, awards, books and various special events which are tailored to fit individual community design. Community recognition of the students who successfully complete each school year is also celebrated with a barbecue event.

For more information, please visit our project websites or TransCanada's blog at [blog.transcanada.com](http://blog.transcanada.com).

Photo at right: TransCanada worked to safely and successfully re-establish river bed support under our GTN natural gas pipeline, which crosses the Pend Oreille River in Idaho.



# MINIMIZING OUR FOOTPRINT

TransCanada has a long-standing commitment to protecting the environment where we work and live. We work hard every day to responsibly manage and minimize our environmental footprint in everything we do – whether it's designing, building or operating energy infrastructure.

**KRISTINE DELKUS**

Executive Vice-President,  
Stakeholder Relations and General Counsel

## ENVIRONMENT

## ENVIRONMENT HIGHLIGHTS



- Cumulative decrease of 665 metric tonnes of CO<sub>2</sub> emissions by our Aviation team as a result of flying at higher altitudes to reduce inflight fuel burn since 2007; enough to offset the emissions from the energy use of **an average home for over 50 years. This is one small example of how we take into consideration the carbon intensity of our operations** within our business decision-making process.
- 40,000 plants relocated along our Mexico Topolobampo pipeline right of way since the project

began, ensuring the preservation of ecosystems along the entire pipeline and exemplifying our commitment to leave the land in a condition equal to or better than we found it.

- 12.3 million pieces of paper saved since the implementation of our various printing initiatives. A stack of all the paper saved would be the equivalent height of almost three Empire State Buildings stacked vertically.
- \$6.8 million in cost benefits from environment-related research and development initiatives in 2014<sup>1</sup>.
- \$5 billion invested in emission-less energy sources – including nuclear, wind, hydro and solar – accounting for over one-third of the power we produce.
- In 2015, TransCanada worked collaboratively with and donated \$1.4 million to 68 non-profit environmental organizations to conserve important habitat, protect species at risk and educate individuals about the importance of the environment.

<sup>1</sup> Most recent year for which data is available.

**At TransCanada, we are committed to protecting the environment. Not just because we have to, but because we want to.**

Our material issue of Environmental Stewardship, Protection and Performance is represented in three sections that follow – Environmental Stewardship, Environmental Protection, and Environmental Performance.

## TRANSCANADA'S ENVIRONMENT STRATEGY

We recognize that how we interact with the environment is of vital importance to you. It is to us, too. We believe that excellence in environmental practices is vital to the well-being of people everywhere and is essential to all aspects of our business. That's why TransCanada's Environment Strategy reflects our long-term corporate culture when it comes to environmental

stewardship, protection and performance. It guides our decisions every day when designing, building and operating energy infrastructure.

**Environmental Stewardship** means considering our corporate values of responsibility, innovation, integrity and collaboration in every interaction we have with the environment.

**Environmental Protection** is about developing and maintaining environmental policies and management systems that help us preserve the integrity of the environment and sustainability of our operations.

**Environmental Performance** is a reflection of our efforts in stewardship and protection. It's how we systematically measure and communicate our environmental work proactively and transparently.

Our Environment Strategy goes beyond simply complying with all applicable environmental laws and regulations; we strive for excellence at every level of the organization.

As one of North America's leading energy infrastructure companies, we respect the diversity of the landscapes where we operate and consider the environmental and cultural aspects of our business activities while fulfilling our obligation to meet the continent's growing demand for safe and reliable energy.

We strive to be leaders in the development of a balanced and sustainable energy future – and our Environment Strategy is a road map to help us ensure our operations and activities are sustainable for decades to come.

## ENVIRONMENTAL STEWARDSHIP

Environmental Stewardship means **considering our corporate values of responsibility, innovation, integrity and collaboration in every interaction we have with the environment.**

### ENVIRONMENTAL STEWARDSHIP THROUGH COLLABORATION

Collaboration and relationship-building are at the heart of our environment strategy. We develop strategic environmental partnerships and advocates to help us solve issues and promote solutions. We ensure environmental commitments made to our stakeholders are viewed as requirements. Our partners in environmental collaboration include our employees, industry partners, Indigenous peoples, communities and regulators.

#### Collaborating with our Employees

Our employees are dedicated stewards of the environment. TransCanada's environmental governance process applies to all employees and is integrated throughout all lines of business in all jurisdictions. In addition to engaging employees in our commitment to the environment through formal governance processes such as our HSE Management System and Environmental Management Program, TransCanada actively engages employees through extensive communication and education initiatives. Our Environment Week speaker series – which educates our employees on the current, relevant and critical environmental issues that affect our business and how TransCanada manages these issues – engaged over 1,900 employees in 2015.

### ENVIRONMENTAL COLLABORATION – IN ACTION

#### Protecting Diamond Willow Fungus

Imagine learning that the fungus that grows on diamond willow trees, used by First Nations to ease the suffering of those with headaches, migraines, respiratory issues and earaches, was in the path of a proposed pipeline project.

“That’s exactly what we found when constructing on the Saturn portion of the Groundbirch pipeline in 2012 that crossed traditional territories of Aboriginal communities east of Chetwynd,” says Shelly Cairns, TransCanada’s senior manager, Canada Indigenous Relations. “And because of TransCanada’s commitment to working with Aboriginal communities, during construction, community members identified the sensitivity of the area with the construction team and we were able to preserve the diamond willow fungus by boring under the trees.”

Recognizing that the diamond willow fungus had an important cultural significance to the community, TransCanada and the Aboriginal community were able to find a solution

that kept the pipeline route intact and avoided adverse effects to the diamond willow fungus by using a technique known as a road bore. This technique is used when an area is designated as too sensitive to excavate. Beginning in an area where excavation was possible, the pipe was drilled horizontally at an appropriate depth, allowing it to run underneath the stand of diamond willow trees, avoiding any disturbance.

The pipeline now runs below the habitat of the diamond willow trees. The sensitive area was left undisturbed, and the cultural and medicinal importance of the area was sustained.

TransCanada spoke to the collaborative protection of the diamond willow fungus during regulatory hearings for the North Montney project in 2014 as a positive example of how we responded to an Aboriginal community concern during construction and came up with an innovative mitigation measure to protect an area of cultural significance to the satisfaction of the community.

Read more on TransCanada’s blog at [blog.transcanada.com](http://blog.transcanada.com).

#### Collaborating with Industry Partners

We recognize there is strength in numbers and we seek outside perspective and input to resolve environmental issues and advance best practices. To avoid working in a vacuum, we participate in a number of industry and multi-stakeholder initiatives and associations.

Through our Environmental Management Program, we continually monitor our facilities to ensure compliance with all environmental requirements. We also routinely monitor proposed changes in environmental policy, legislation and regulation, and, where the risks are potentially large or uncertain, we comment on proposals independently or through industry associations.



For over a decade, TransCanada has supported the Nature Conservancy of Canada (NCC) – Canada’s leading land conservation organization – donating over \$2.7 million to the organization. **Most recently, TransCanada made a \$120,000 donation to help the NCC protect more than 2,100 acres** (850 hectares) of ecologically significant habitat along the Southwest Miramichi River of New Brunswick. This important watershed is world-renowned as the site of North America’s largest run of Atlantic salmon and is home to fish nurseries.

### **Collaborating with Indigenous Peoples**

TransCanada recognizes and respects the rights of Indigenous peoples and their distinct relationship with the land. TransCanada seeks to understand how our activities may affect Indigenous communities and believes that it is important to integrate traditional knowledge into our environmental planning. TransCanada is committed to

working with Indigenous communities to minimize potential adverse effects and find mutually beneficial solutions.

### **Collaborating with Communities**

We work closely with our communities to ensure their environmental concerns are heard and that we are supporting environmental initiatives that matter most to them.

As an example, since Energy East was announced in 2013, our teams have worked closely with communities along the proposed 4,600-kilometre (2,850-mile) route. We amended our project application in late 2015 to include over 700 route and scope changes to avoid sensitive environmental areas as a direct result of listening to stakeholders.

We also work with national and local organizations to conserve important habitat, protect species at risk and educate individuals about the importance of the environment. In 2015, TransCanada worked collaboratively with and donated \$1.4 million to 68 non-profit environmental organizations to conserve important habitat, protect species at risk and educate individuals about the importance of the environment.

### **ENVIRONMENTAL STEWARDSHIP THROUGH INNOVATION**

We invest in research and development to encourage environmentally beneficial technologies and techniques. The pipelines, oil and gas storage facilities and power plants owned and operated by TransCanada are among the most technologically advanced in the industry. TransCanada has played a key role in advancements related to reducing the environmental impacts, not only of our own activities but across the industry.

TransCanada’s development of the Two-Stage Supersonic Ejector exemplifies an R&D success in reducing emissions

and is also an environmental initiative which has generated additional revenues for TransCanada. The system, which TransCanada patented, has been licensed to a third-party manufacturer from which TransCanada receives royalty payments. TransCanada has received a number of prestigious awards for developing this innovative device that fits into compressors to capture and recycle 100 per cent of the fugitive emissions that would have been normally vented into the atmosphere, thus reducing greenhouse gas emissions and increasing energy efficiency.

In 2014, the most recent year for which data is available, TransCanada recorded a savings of \$6.8 million from environment-related R&D initiatives which, in addition to providing a cost savings to TransCanada, significantly reduced our impact on the environment. These initiatives include the development of a mathematical model to quantify site contamination, reducing the need for invasive testing and extensive site remediation; research supporting the effective management of creosote tiles; and a non-invasive, water-free electronic alternative to the hydrostatic testing of pipelines.

### **ENVIRONMENTAL STEWARDSHIP THROUGH ENVIRONMENTAL RESPONSIBILITY**

#### **Minimizing Our Environmental Footprint**

As part of our commitment to environmental stewardship, we work to minimize our environmental footprint as we strive to meet the energy needs of North Americans. We’re committed to protecting the environment throughout the complete life cycle of our assets, from business development to project planning and design, through construction and reclamation to operations and final decommissioning.

Photo at right: About a year after construction of the Keystone Pipeline, this land in Nebraska was back to producing healthy crops. We believe in leaving the land just the way we found it.



# DOING THE RIGHT THING

We received a 2015 Environmental Performance Award by the American Petroleum Institute (API) for having the best performance record in the large-operator category.



**Examples of significant finds on TransCanada projects include:**

- A 7,000-year-old bison kill site above the Battle River in central Alberta
- An extremely rare collection of over 200 Clovis artifacts dating back 13,000 years near Lily Lake, B.C.
- A postclassic period (approximately AD 900 to 1500) residential and ceremonial site in the mountainous Sierra Gorda region of Mexico once inhabited by a diverse mix of cultures represented by both the Huasteca and Metztitlán regions of Mexico

When sites or artifacts are discovered during construction, all construction activities at that location cease until the proper authorities are notified, mitigation is implemented as appropriate, and approval to proceed is granted.

**TransCanada collaborates with Indigenous communities in the management of these sites** and, when circumstances require, we reroute our pipeline to ensure preservation of the archeological site.

**Land and Biodiversity**

TransCanada operates over 70,000 kilometres (43,500 miles) of the industry's safest and most efficient natural gas and liquids pipelines across many different geographic and ecological zones in North America. These pipelines deliver the energy that millions of North Americans rely on every day, and we are committed to adding to this infrastructure to meet the world's growing demand for energy.

At TransCanada, we believe that when we build an asset, we temporarily borrow the land.

To minimize effects of our projects on the surrounding environment, TransCanada completes a detailed environmental assessment. Depending on the type and scale of the project, the environmental assessment may include extensive field studies which examine existing natural resources along our proposed project footprint, such as vegetation, soils, wildlife, water resources and wetlands, protected areas and land use. Also integral to the environmental assessment process – and in keeping with our commitment to collaboration – is TransCanada's engagement with Indigenous communities, landowners, local residents and other stakeholders to identify and understand their use of the lands and any additional unique environmental concerns.

Information gathered from the environmental assessment is used in design considerations, including pipeline route selection and facility site selection, and to inform project-specific environmental protection plans. In order to further avoid environmental impacts, existing linear disturbances and previously established corridors are followed wherever practical.

Environmental assessments conducted in support of our pipeline developments provide opportunities for the identification and study of heritage resources – archeological sites, historical sites and paleontological sites (fossils) – across large areas. Significant heritage resource finds have been recovered during TransCanada assessments, providing significant insight to scientific communities, Indigenous peoples and the general public.

TransCanada has a long-standing commitment to protecting the environment where we live and work. Once our projects are constructed, TransCanada reclaims the land to maintain equivalent land capability and re-establish the land's biodiversity. Over the course of our 65-year history, TransCanada has successfully reclaimed hundreds of thousands of acres of land in many different ecological regions following pipeline construction and other facility construction throughout North America.

Our commitment to the protection of the land does not end with successful reclamation after construction. Post-construction monitoring is conducted to confirm the effectiveness of mitigation strategies, reclamation and habitat restoration activities. During operations and throughout the life of our assets, TransCanada follows a comprehensive environmental governance process anchored by an environmental management program and continues to collaborate with landowners, communities, Indigenous peoples and other stakeholders, respecting the cultural and environmental aspects of the lands we operate within.

## Waste Management

TransCanada is committed to the proper management of waste materials in order to protect human health and the environment. TransCanada employs a comprehensive waste management process across all business areas and jurisdictions.

We endeavour to do business with companies and contractors that share our commitment to the environment and we regularly assess their performance. TransCanada's waste contractors are managed through a rigorous procurement, full life cycle management process. The process includes a safety, technical and quality pre-qualification to ensure contractors meet TransCanada's industry-leading safety standards and possess the technical expertise and quality infrastructure to manage our waste in full compliance with all regulatory and TransCanada requirements.

A large number of waste materials, including used batteries and lube oil, are recycled. Used pipe and other waste metals, after being vetted through strict company procedures, are normally able to be recovered as scrap and repurposed.

## CLIMATE CHANGE AND ENERGY EFFICIENCY

### Climate Change – Our Commitment

Climate change is at the forefront of environmental interests at TransCanada. As an energy infrastructure company, we recognize our role in the larger energy system, including our own emission of greenhouse gases (GHGs). We're doing our part to manage our GHG emissions through the programs and initiatives we have in place that meet, and often exceed, regulatory requirements.

TransCanada has had a climate change strategy for many years. TransCanada is committed to the management of climate issues across our operations. We have established lines of accountability and responsibility for climate change throughout our organization. Updates on the company's initiatives to manage GHG emissions are presented to TransCanada's health, safety and environment committee of the board. Our president and CEO, Russ Girling, who also sits on the Board of Directors of TransCanada, holds the highest level of direct responsibility for climate change issues. Additional responsibilities are divided among TransCanada's main areas of business.

TransCanada recognizes stakeholder concerns related to increasing GHG emissions and the need for sensible public policy frameworks focused on managing emissions. To that end, we engage with policy-makers, participate in industry association working groups and fund research organizations that disseminate public work on climate change.

Our commitment to a unified North American response to climate change issues is exemplified by our participation as a founding partner in the U.S. Environmental Protection Agency's (EPA) new Natural Gas STAR Methane Challenge Program, launched in March 2016. The Natural Gas STAR Methane Challenge Program is intended to spur near-term, widespread implementation of methane mitigation activities across the oil and natural gas value chain. As a founding partner, TransCanada has made a commitment to implement an industry-leading best management practice across our operations within five years to address emission sources specified by the



We continue to seek opportunities to reduce our waste generation and to recycle waste materials. **In early 2016, our head office building in Calgary upgraded to a more comprehensive recycling program** to align with the City of Calgary's goal of 80 per cent waste diversion from city landfills. In April 2015, our Coolidge Generating Station implemented an Arizona Department of Environmental Quality-approved Pollution Prevention Plan (P2), with the goal of reducing its solid waste generation by implementing a recycling program. **The goal of the P2 plan is to reduce the solid waste generated at Coolidge by one per cent each year.** Coolidge is on track to reduce the solid waste generated by three per cent during the first year of the plan's implementation.

program. Program partners will report on their progress annually and this data will be publicly released on the EPA program website. More information is available online through the EPA's website at [www3.epa.gov/gasstar](http://www3.epa.gov/gasstar).

## ENVIRONMENTAL STEWARDSHIP – IN ACTION

### Partners in wildlife protection

When a grizzly bear saunters through a pipeline right of way (ROW), what does it do? Does it avoid the area, or does it prefer it? Does it use the area for feeding, travel or anything else?

Those are the questions that Mike Wilfley on TransCanada's environment team has been monitoring for several years as part of our involvement with a Foothills Research Institute (FRI) study. While study of grizzly bears led by FRI has spanned over 16 years, the past few years have focused more specifically on grizzly bear response to unique linear features, like pipeline ROWs.

"The objectives of this specific study were to summarize what has been learned in terms of how these bears interact with ROWs and if they're influenced by the food and landscape they find there," says Wilfley, a biologist with 21 years' experience studying flora and fauna in the field who joined TransCanada two years ago. "In particular, it puts years of observation into a context that helps us plan our projects."

TransCanada invests heavily in research to better understand and minimize the impacts of pipeline ROWs on sensitive

wildlife species, such as grizzly bears and caribou. The combination of industrial development, forest fires, habitat fragmentation and induced predator-prey interaction are believed to be factors contributing to declining boreal populations in Canada of woodland caribou, a federally listed species at risk. Co-ordinated effort to restore caribou habitat is key to facilitating the recovery of caribou populations.

In collaboration with the Government of Alberta and other key partners, TransCanada implemented measures to restore the quality and connectivity of more than 247 acres (100 hectares) of critical caribou habitat in the newly proposed Dillon River Wildland Park. Abandoned seismic lines and roads not used for recreational and traditional purposes were blocked with coarse woody debris and re-planted with native tree species to enhance disturbed habitat and restore ecological function.

"When TransCanada started planning pipeline projects in northern Alberta, we identified a need to offset residual effect on woodland caribou habitat," says Kim Ogilvie, manager of Canadian environmental planning and permitting.

"So, we entered into what some might call an unlikely partnership with Alberta Pacific Forest Industries Inc. and Alberta Environment and Sustainable Resource Development to create a collaborative, restoration project that would align to Alberta's woodland caribou policy priorities and federal caribou recovery strategies."

"We each had our own interests, but we bonded over the notion that the caribou story starts with shared objectives – take action, work together and leverage resources to ensure that restoration investments are meaningful," adds Ogilvie.

As part of our commitment to environmental stewardship, TransCanada continues to participate in co-ordinated caribou habitat restoration, applied research and effective monitoring where our operations overlap with boreal caribou habitat.

Read more about grizzly bear research and caribou habitat conservation on TransCanada's blog at [blog.transcanada.com](http://blog.transcanada.com).

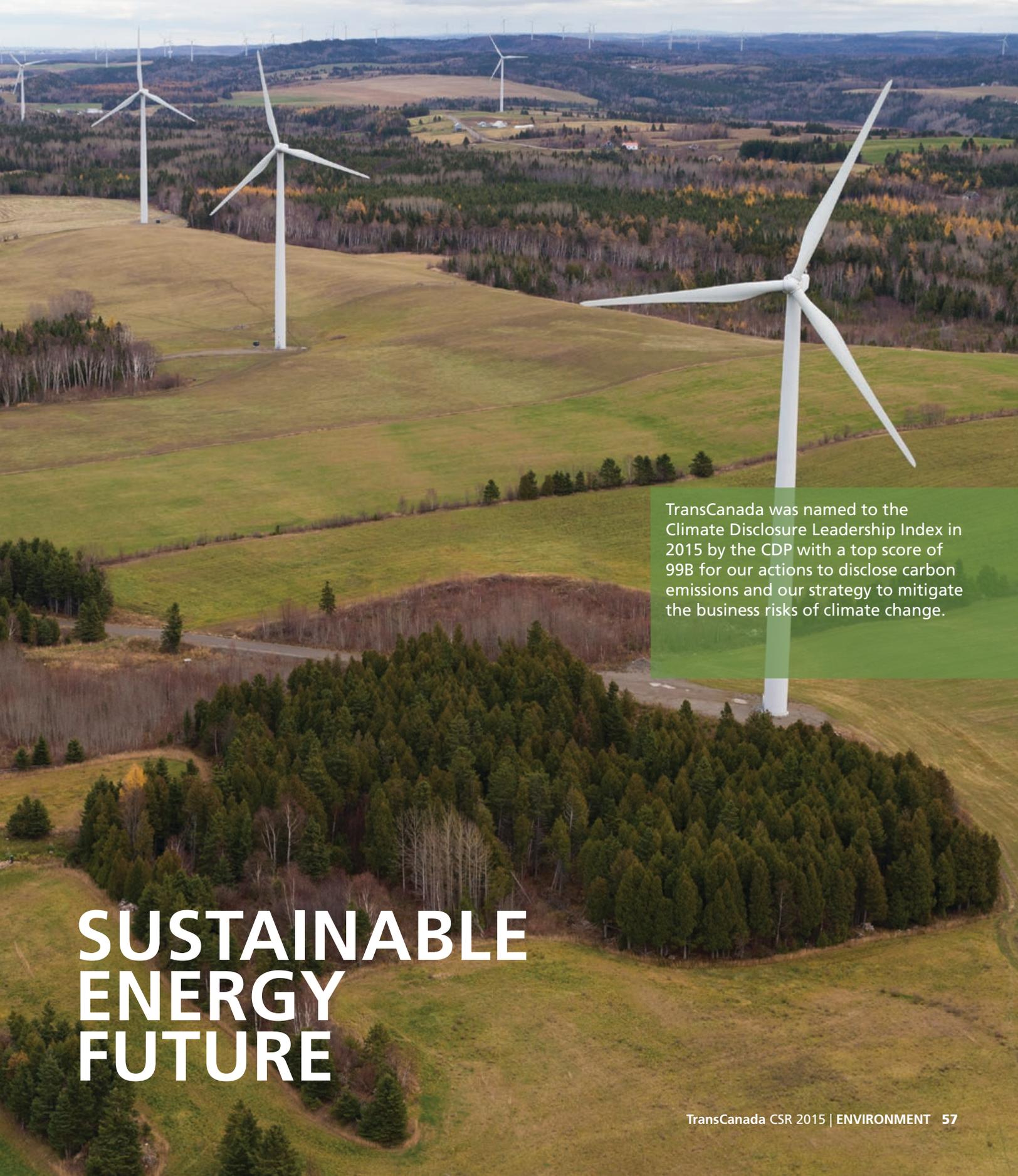
TransCanada has publicly documented climate change-related activities for nearly 20 years. We have voluntarily reported to the London-based CDP (formerly the Carbon Disclosure Project) since 2006. In 2015, TransCanada received an industry-leading score of 99B on the CDP Climate Disclosure

Leadership Index (CDLI) by disclosing high-quality carbon emissions and energy data through CDP's climate change program. Since 2012, TransCanada has been among Canada's top CDP-scoring companies and named to the country's CDLI.

### Improving Efficiency and Reducing Emissions

TransCanada's commitment to reducing emissions and improving efficiency isn't new. For over half a century, we have tested promising new technologies to minimize fugitive emissions and reduce emissions and fuel consumption of our pipeline compressors.

Photo at right: The Cartier wind facilities in Québec provide enough clean energy to power more than 100,000 homes.



TransCanada was named to the Climate Disclosure Leadership Index in 2015 by the CDP with a top score of 99B for our actions to disclose carbon emissions and our strategy to mitigate the business risks of climate change.

# SUSTAINABLE ENERGY FUTURE

## INNOVATION REDUCES ENVIRONMENTAL IMPACT



TransCanada's advancement of Electromagnetic Acoustic Transducer (EMAT) technology, a non-destructive in-line inspection tool that uses sound waves to detect defects in steel pipelines, has allowed EMAT to be used as an alternative to the hydrostatic testing of pipelines, eliminating impact to water sources and resulting in considerable cost savings. TransCanada continues our work on this important innovative initiative as part of our commitment to protecting the environment.

For instance, in 1964 we introduced the pipeline industry's first Rolls-Royce Avon turbine – derived from Rolls-Royce's Avon turbojet – in an Ontario compressor station. Over 50 years later, TransCanada operates the biggest fleet of industrial Rolls-Royce engines in the world, and the partnership continues with ongoing research into even higher efficiency turbines.

General Electric (GE) is another long-time partner with TransCanada in improving efficiency for TransCanada's power generation facilities. In 2012, TransCanada replaced key turbine parts at our Ravenswood generating station in New York City and Mackay River cogeneration facility in Alberta with new components made from advanced materials developed for GE jet engines. These efficiencies are translating into more reliable power generation and rate competitiveness for customers, including providing New York City with 20 per cent of its power from the Ravenswood generating station.

In 2014, using key industry insights from TransCanada, GE announced the launch of a new 16.5 megawatt gas turbine, developed to meet the oil and gas industry's evolving challenges. The NOVALT16 gas turbine raises the standards of efficient and reliable pipeline compressions, power generation and oil and gas plant compression applications, thereby helping to meet increasing energy demand across the world. Development and testing of the NOVALT16 engine began in 2013. TransCanada is encouraged by this technology and intends to pilot the use of it at one of our northern Alberta compressor stations in late 2017. We are hoping to see NOVALT16 move TransCanada further down that sustainability continuum.

Focusing our R&D dollars on improving efficiency is another way TransCanada has continued to invest in the long-term sustainability of our operations. Please see the Research and Development section on page 23 for more information.

## Investing in a Balanced Energy Future

Our commitment to transition to a balanced energy system also extends to our business development decisions.

With our extensive experience building, operating and investing in diverse power generation technologies, fuel types and commercial structures, we can actively participate in supporting the energy shift from coal-fired generation to natural gas, nuclear and renewables. Our growing investment in natural gas, nuclear, wind, hydro and solar generating facilities demonstrates our commitment to clean, sustainable energy. To date, TransCanada has invested more than \$5 billion in emission-less energy sources, accounting for over one-third of the power we produce.

As an example, we are playing a key role in Ontario's successful elimination of coal-fired power generation through our 48.5 per cent ownership of the Bruce Power nuclear facility. In 2015, we entered into an agreement with the Ontario Independent Electricity System Operator to extend the operating life of the facility to 2064. This agreement secures reliable, affordable, emission-less power for Ontario residents for many decades to come.

See the About TransCanada section on page 9 for more information on our energy assets.

## WATER

TransCanada recognizes water and water systems as a fundamental component of the ecosystems where we operate. The protection of our water resources is of the utmost importance to both the environment and our business.

TransCanada has a responsible relationship with water on many levels – for example, pipeline watercourse crossings create temporary interactions with aquatic environments during construction, we borrow fresh water during the hydrostatic testing of the integrity of our pipelines, we utilize water as a coolant and essential component of the power generation process at our power facilities, and we harness the energy of falling water to create electricity through our extensive hydroelectric system.

In accordance with all applicable regulatory requirements and environmental assessment processes, TransCanada identifies and characterizes water-related issues in the planning and permitting stages of asset development. When a potential exists for our proposed facilities or infrastructure to interact with natural water resources, evaluations are conducted to understand the full nature and extent of the interactions. Specific plans are developed and implemented to ensure all resources are protected to maintain their natural function within the environment. Water is responsibly managed by our operations through a comprehensive environmental management program.

### Watercourse Crossings

Information is gathered about all watercourses crossed by our projects. The information gathered during these surveys, in combination with provincial, state and federal guidelines and input from engagement activities, is used to determine the most appropriate method of installing a pipeline at a watercourse crossing.

Given the sensitivity of the aquatic environment, prescriptive mitigation is put in place to minimize the impact of construction and operations activities. A key mitigation is the selection of an appropriate pipeline installation method for the watercourse crossing. The most appropriate technique for each watercourse crossing is chosen according to a defined set of criteria, including the presence of sensitive and critical fish habitat, with the objective of achieving no net loss of fish habitat. Disruption of sensitive life stages (i.e., spawning, fry emergence) is avoided by timing construction outside of any restricted activity periods.

Other information gathered to help develop site-specific mitigation, aid in the protection of sensitive areas and minimize erosion and sedimentation includes:

- Riparian habitat quantity, quality and restorative ability
- Stream morphology, discharge and velocity
- Terrain stability

Protection of these sensitive areas is also accomplished by limiting clearing and grading, adjusting the width of the right of way and through habitat reclamation programs.

Watercourse crossing methods are industry-proven construction techniques that are typically grouped into three categories:

- Trenchless – these methods do not involve in-stream work to install the pipe. Horizontal directional drilling is a common trenchless method.
- Isolated crossing – using either a flume or dam and pump system, the water is diverted over or around the excavation.

- Open cut – generally used when a watercourse is dry or frozen to the bottom, has limited fisheries value or as a contingency crossing method for large river crossings.

TransCanada takes extra precaution around bodies of water for our oil pipelines, implementing thicker walled, reinforced steel pipe and shut-off valves on both sides of the waterway that can isolate an incident area within minutes to limit the impact of a potential spill.

As part of TransCanada's post-construction reclamation and monitoring program, a variety of assessments are conducted to evaluate factors such as terrain stability, soil productivity, erosion sediment controls and riparian vegetation to ensure the re-establishment of equivalent land capability after construction.

### Hydrostatic Testing

TransCanada borrows fresh water from water sources to hydrostatically test the integrity of our pipelines. This process is subject to a prescriptive environmental management process. All water used in the hydrostatic testing of our pipelines is tested, treated if required and returned to the environment in compliance with all applicable regulations.

### Water in Power Generation

Our various non-hydroelectric power facilities use water in various ways – to generate steam to create electricity and as a coolant in plant processes. When water is used, it is sourced from fresh water, sea water or groundwater sources. The use of water in power generation processes is subject to a prescriptive regulatory, governance and best management framework. When water is returned to its

source or discharged to the environment, it has been rigorously tested to meet or exceed all discharge criteria. TransCanada's Ocean State Power, Ironwood and Coolidge generating stations utilize a zero-liquid-discharge water treatment system to eliminate any process water discharges to the environment.

Our hydropower assets have a very intimate relationship with water sources, harnessing the raw power of water in the natural environment to create electricity. The water we borrow in our hydropower process is a precious shared resource and TransCanada takes industry-leading measures to ensure its protection. We have achieved a Low Impact Hydropower Institute (LIHI) certification for the bulk of our hydroelectric generation in New England. LIHI is a non-profit organization dedicated to reducing the impacts of hydropower generation through the certification of hydropower facilities that have avoided or reduced their environmental impacts. The LIHI certification program is intended to protect multiple ecosystem components, including river flows, water quality, fish and wildlife, as well as meet recreation and cultural preservation needs. In order to be certified, a hydropower facility must pass the LIHI low impact standard for each of these ecosystem components, with criteria based on the most recent and most stringent state and federal mitigation measures.

## ENVIRONMENTAL PROTECTION

We preserve the integrity of the environment through a comprehensive management system. This system is driven by an integrated Health, Safety and Environment Commitment Statement and an environmental management program that guides the proactive management of our risks and requirements.

See the Management Systems section on page 10 for more information on the management systems, programs and procedures that enable TransCanada to ensure compliance with regulatory requirements and support development and adoption of best management practices across all lines of business and assets.

## GREENHOUSE GAS EMISSIONS

### DIRECT GREENHOUSE GAS EMISSIONS (tCO<sub>2</sub>e)<sup>1</sup>

	2012	2013	2014	2015
Natural Gas Pipelines	6,000,000	7,100,000	7,400,000	7,300,000
Liquids Pipelines	0	0	0	0
Power	6,300,000	5,100,000	5,300,000	5,700,000
Total	12,300,000	12,200,000	12,700,000	13,100,000

<sup>1</sup> tCO<sub>2</sub>e = tonnes of carbon dioxide equivalent.

Note: Numbers may not add up due to rounding. TransCanada's direct GHG emissions reporting boundary is based on an asset equity share. Our oil storage assets and liquids pipelines are below direct GHG reporting thresholds. The TransGas Natural Gas Pipeline System (in Colombia) is excluded. Coal combustion is the main source of GHG emissions at the coal-fired power plants for which we have agreements to purchase power from the facilities, and represents an indirect GHG emissions source for TransCanada. These arrangements are excluded from our reporting boundary and were terminated in 2016. Values reported in previous TransCanada reports may differ from the above as inputs may be updated after the date of publication of annual reports such as the CSR, and we regularly review reporting scopes and methodologies.

## ENVIRONMENTAL PERFORMANCE

At TransCanada, we systematically measure and communicate our performance in a proactive and transparent manner. We are committed to continuously improving our environment performance.

Please see Recognition on page 9 for examples of TransCanada's achievements in environmental, social and economic performance.

### Indirect Greenhouse Gas Emissions

Indirect GHG emissions are disclosed in our CDP reports, publicly available at [www.cdp.net](http://www.cdp.net).

# ENVIRONMENTAL RESPONSIBILITY

TransCanada scored in the 100th percentile on the Dow Jones Sustainability Index (DJSI), and earned rankings on the DJSI North America and World Indices in 2015.

## CRUDE OIL SPILLS

TransCanada takes extensive preventive measures to ensure that our pipelines operate safely. In the unlikely event of a crude oil spill, TransCanada has extremely comprehensive and prescriptive emergency response plans in place to quickly and effectively minimize risk to people and the environment.

Since beginning operations in July 2010, Keystone has delivered more than 1.2 billion barrels of oil from Canada to the

U.S. The spills that occurred on Keystone during the reporting period (up to December 31, 2015) indicated below have been at pump stations and other above-ground facilities and have been related to leakage from small-diameter fittings and seals. All causative issues have been repaired or addressed. All crude oil spills were cleaned up with no adverse impact to the environment. TransCanada investigates and learns from all crude oil spills to make system-wide improvements in order to prevent similar occurrences.

## REPORTABLE CRUDE OIL SPILLS

	2011	2012	2013	2014	2015
<b>Canada</b>					
Number	42	44	21	9	1
Total Volume (litres)	438	214	3,054	61	2,300
<b>U.S.</b>					
Number	8	0	1	1	0
Total Volume (litres)	65,753	0	76	238	0

A reportable spill is defined as one that is reportable to a regulatory body, such as a federal or provincial or state regulator. Prior to July 1, 2014 in Canada, all Keystone crude oil spills, regardless of volume, were reportable to the Canadian Transportation Safety Board (TSB). The higher number of reportable spills prior to 2014 reflects this previous requirement. Data reported in previous TransCanada CSR reports may differ from the above as data have been updated to reflect finalized incident information.

## ENVIRONMENTAL FINES (\$s)

	2013	2014	2015
Energy Operations	7,500 US	1,000 US	0
Gas and Gas Storage Operations	1,000 US	0	15,500 US
Oil Operations	0	0	0
Project Development	2,690 CAD	0	5,000 CAD

## REGULATORY PERFORMANCE

Regulatory compliance is integral to TransCanada's Environmental Management Program and is the primary guiding principle of our Health, Safety and Environment Commitment Statement.

TransCanada received four regulatory Notices of Violation in 2015 which were resolved by small monetary penalties. The resulting fines totalled US\$15,500 and CAD\$5,000 and were as follows: a Louisiana Department of Public Safety fine of US\$3,500 for the delayed reporting of a minor spill resulting from a mainline valve leak; a Spokane Regional Clear Air Agency fine of US\$8,000 for an air permit limit exceedance during a planned emissions test at one of our compressor stations; a Washington Department of Ecology fine of US\$4,000 for an air permit limit exceedance during a planned emissions test at one of our compressor stations; and a Québec Ministry of Sustainable Development, Environment and the Fight Against Climate Change (the Ministry) fine of CAD\$5,000 for carrying out project-related geophysical surveys in the St. Lawrence River without first obtaining a Certificate of Authorization from the Ministry. All causative factors have been identified and any appropriate corrective action has been performed.

## WATER CONSUMPTION

### TOTAL WATER CONSUMPTION<sup>1</sup>

(million cubic metres)

	2014	2015
Total	3.8	4.2

<sup>1</sup> Total Water Consumption: water withdrawn, net of water discharged to the source with higher or equal quality.

Note: The above data includes our power assets and Canadian pipeline assets.

Photo at right: ANR Pipeline's Blue Lake compressor station in Michigan is part of TransCanada's extensive network of natural gas pipelines, which supplies 20 per cent of the natural gas consumed daily across North America.

# STRONG AND STABLE



We are a strong and stable company thanks to our proven strategy and long-term view, which have positioned us for continued success during challenging times. When we are successful, our shareholders and the communities where we operate share in the economic benefits of our operations.

**DON MARCHAND**  
Executive Vice-President, Corporate Development  
and Chief Financial Officer

## ECONOMY

TransCanada operates in an undeniably complex and changing energy environment. While global demand for energy continues to grow, new climate change policies have accelerated the transition to cleaner energy alternatives, and the industry has been challenged by low oil and gas prices.

As we navigate the constantly shifting environment, TransCanada continues to grow and perform well. We are well positioned for continued growth and long-term success because of our commitment to operating safely and sustainably.

## FINANCIAL PERFORMANCE

Although 2015 was a very challenging year for the energy industry, our portfolio of high-quality, long-life, critical energy infrastructure assets performed very well. Comparable earnings and funds generated from operations reached record levels, while we continued to safely deliver energy every day to millions of people and businesses.

We were, however, not immune to setback in 2015. As a result of the U.S. Administration's decision to deny a Presidential permit for Keystone XL, TransCanada recorded a \$2.9 billion writedown of our investment in the project. In response, in early 2016 we filed a Notice of Intent to initiate a claim under Chapter 11 of the North American Free Trade Agreement (NAFTA) on the basis that the denial was arbitrary and unjustified. In addition, we filed a separate claim in U.S. Federal Court asserting the President's arbitrary decision exceeded his constitutional authority.

In spite of falling crude oil prices, the need for Keystone XL remains strong and TransCanada, along with our shippers, remains committed to building the project. That being said, and despite the volume of headlines, TransCanada is much more than just Keystone XL.

Our \$64 billion of North American infrastructure assets is largely underpinned by cost-of-service regulated business models or long-term contracts with credit-worthy counterparties, resulting in highly predictable cash flow streams with minimal commodity or volume throughput risk. In 2015, these assets produced record cash flow of \$4.5 billion. In addition, we are proceeding with \$13 billion of near-term growth projects that are expected to be in service by 2018. Over the medium to longer term, we are advancing an additional \$45 billion of commercially secured, large-scale projects and various other initiatives that have the potential to create significant additional long-term shareholder value.

Based on continued growth in sustainable cash flow and earnings, our Board of Directors approved our 16th consecutive annual increase in the common share dividend, increasing the annualized dividend from \$2.08 to \$2.26, an increase of nine per cent. Looking forward, based on the stability of our base business, our visible near-term growth portfolio and our financial strength, we expect our common share dividend to continue to grow at an average annual rate of eight to 10 per cent through 2020. Success in advancing our long-term growth initiatives could further extend and augment future dividend growth.

We are proud of the successes achieved in each of our three businesses in 2015. Simply put, we improved efficiency and performance across each business line. We advanced growth projects in each area, bringing new assets into service while progressing others through the permitting and construction processes, and we continued to grow our portfolio of commercially secure investment opportunities. TransCanada remains a leader in each of our three core businesses, and each business – despite commodity price weakness – remains competitive in markets with strong fundamentals for continued growth.

## FINANCIAL HIGHLIGHTS 2015

We use certain financial measures that do not have a standardized meaning under GAAP because we believe they improve our ability to compare results between reporting periods and enhance understanding of our operating performance. Known as non-GAAP measures, they may not be similar to measures provided by other companies. Comparable EBITDA (comparable earnings before interest, taxes, depreciation and amortization), comparable EBIT (comparable earnings before interest and taxes), comparable earnings, comparable earnings per common share, funds generated from operations, comparable distributable cash flow and comparable distributable cash flow per common share are all non-GAAP measures. See page 10 of the Annual Report available on [www.transcanada.com](http://www.transcanada.com) for more information about the non-GAAP measures we use and pages 84 and 108 for a reconciliation to their GAAP equivalents.

Year ended December 31 (millions of \$, except per share amounts)	2015
<b>Income</b>	
Revenues	11,300
Net (loss)/income attributable to common shares	(1,240)
per common share – basic & diluted	(\$1.75)
Comparable EBITDA	5,908
Comparable earnings	1,755
per common share	\$2.48
<b>Cash flows</b>	
Funds generated from operations	4,513
Increase in working capital	(398)
Net cash provided by operations	4,115
Comparable distributable cash flow	3,546
per common share	\$5.00
Capital spending – capital expenditures	3,918
Capital spending – projects in development	511
Contributions to equity investments	493
Acquisitions, net of cash acquired	236
Proceeds from sale of assets, net of transaction costs	–
<b>Balance sheet</b>	
Total assets	64,483
Long-term debt	31,584
Junior subordinated notes	2,422
Preferred shares	2,499
Non-controlling interests	1,717
Common shareholders' equity	13,939
<b>Dividends declared</b>	
per common share	\$2.08
per Series 1 preferred share	\$0.8165
per Series 2 preferred share <sup>1</sup>	\$0.6299
per Series 3 preferred share	\$0.769
per Series 4 preferred share <sup>2</sup>	\$0.2269
per Series 5 preferred share	\$1.10
per Series 7 preferred share	\$1.00
per Series 9 preferred share <sup>3</sup>	\$1.0625
per Series 11 preferred share <sup>4</sup>	\$0.704

1 Issued December 2014 upon conversion of Series 1 preferred shares.

2 Issued June 2015 upon conversion of Series 3 preferred shares.

3 Issued January 2014.

4 Issued March 2015.

## STRATEGIC PRIORITIES

- Maximize the value of our \$64 billion asset base by delivering energy safely and reliably, every day
- Complete the US\$13 billion acquisition of Columbia Pipeline Group
- Successfully complete \$13 billion in near-term growth projects and advance \$45 billion of commercially secured longer term projects
- Cultivate a portfolio of additional low-risk growth opportunities
- Maintain financial strength and flexibility

Financial data was taken from financial statements included in our Annual Information Form (AIF) and Annual Report available on [www.transcanada.com](http://www.transcanada.com). Please see page 100 of our Annual Report for Management's annual report on internal control over financial reporting.

## FINANCIAL RISKS

Please see the Risks and Risk Management section on page 10 for more information on general risks that affect our company.

We are exposed to market risk, counterparty credit risk and liquidity risk, and have strategies, policies and limits in place to mitigate their impact on our earnings, cash flow and, ultimately, shareholder value.

These strategies, policies and limits are designed to ensure our risks and related exposures are in line with our business objectives and risk tolerance. We manage market risk and counterparty credit risk within limits that are ultimately established by the board, implemented by senior management and monitored by our risk management and internal audit groups. Management monitors compliance with market and counterparty risk management

policies and procedures, and reviews the adequacy of the risk management framework, overseen by the audit committee. Our internal audit group assists the audit committee by carrying out regular and ad hoc reviews of risk management controls and procedures, and reporting up to the audit committee.

Detailed information on these financial risks and our mitigation strategies can be found starting on page 97 of the Annual Report available on [www.transcanada.com](http://www.transcanada.com).

## BRINGING ECONOMIC VALUE TO OUR COMMUNITIES

We are proud of the successes achieved by our business. And we are also pleased that the communities where we operate benefit from the economic success of our operations.

In 2015, we paid \$162 million in cash taxes and \$517 million in property taxes to communities across North America. These taxes are used by communities to pay for schools, roads, hospitals and more. We also employ local staff, contributing jobs to the local economy.

We deliver more than just energy to the communities where we operate, and we are happy to play a role in making our communities a better place to live.

## FINANCIAL PERFORMANCE – IN ACTION

### Solar panels energize Mexican communities for the first time

Thanks to TransCanada, some remote communities in Mexico near TransCanada's El Encino-Topolobampo pipeline are experiencing power for the first time as a result of local investments made by the company.

The 530-kilometre (330-mile) El Encino-Topolobampo pipeline construction project runs through some of the most challenging geography TransCanada has faced on its projects – including monumental mountain ranges and gullies in the famous Sierra Tarahumara.

Some of the areas along the pipeline route are so remote that TransCanada used an air crane from Erickson to transport more than 1,000 pipeline segments to the region. This region is home to some of the most isolated Indigenous communities in Mexico – where TransCanada has recognized a need for assistance. TransCanada recently installed solar panels in the remote community of San Elías, an Indigenous community of about 100 people. The investment will provide electricity for at least 25 years to some common areas and facilities such as the local health centre and community school.

These facilities also provide services for 200 other nearby residents from smaller and equally remote communities. In

addition to the solar panels in San Elías, furniture and equipment were provided to a local orphanage in Cuauhtemoc that provides services for 500 children. The same orphanage was provided with playground equipment in 2014.

“To us, TransCanada's support was like a big miracle,” says Denver Penner, an orphanage administrator, who grew up in Canada but whose parents were born in Mexico. “It fills me with pride that TransCanada is working with us here in Mexico, not only by creating jobs with the construction of the pipeline, but by also changing the lives of these kids.”

Recognizing the needs in the area, TransCanada made additional investments to support local communities along the route, such as the donation of materials for building a small dam that will supply water to the nearly 1,000 residents of the community of La Noria. TransCanada also organized the reforestation journey in Cuauhtemoc, which included planting over 700 trees in a park at the centre of town. The park is a popular recreation place for the more than 114,000 residents of the small city.

Read more on TransCanada's blog at [blog.transcanada.com](http://blog.transcanada.com).



TransCanada was named Alberta Oil Magazine's Top Performing Midstream Company of 2016.

# ECONOMIC SUCCESS

## Community Investment

In 2015, TransCanada directed more than \$14.7 million to over 1,400 non-profit organizations across North America. Please see the Community Investment section on page 37 for the direct value of our non-profit and charitable contributions including employee giving and volunteering.

## Economic Value through Employment

Each new project the company undertakes is an opportunity for further job creation and economic stimulus in communities across North America.

In 2015, TransCanada employed more than 5,500 employees across Canada, the U.S. and Mexico – employees who

play an active part in the economic success of the communities where they live and work.

## OUR SUPPLY CHAIN

As a large and multi-faceted business, TransCanada works with a broad range of qualified suppliers across North America. We aim to identify and work with high-quality vendors while encouraging continuous improvement to meet TransCanada's service expectations.

In 2015, TransCanada engaged more than 1,579 suppliers and generated CAD\$5.1 billion in business for our suppliers.

## PAYROLL COSTS AND EMPLOYEE BENEFITS IN 2015

	Canada (CAD\$ M)	U.S. (US\$ M)	Mexico (MXN\$ M)	TOTAL (CAD\$ M)
Total payroll costs	699.9	261.8	368.0	1,064.4
Employee benefits	98.7	58.7	14.1	272.5

## EMPLOYEES BY COUNTRY IN 2015

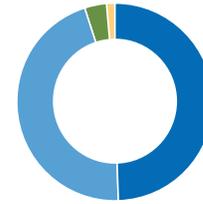
	Canada	U.S.	Mexico	TOTAL
Employees (#)	3,603	1,757	152	5,512

Total payroll costs are based on T4, W2 and Constancia de Percepciones earnings for Canadian, U.S. and Mexican core employees.

Employee Benefit Costs include the overall costs for the following programs, where applicable: pension plans, benefits (including medical, dental and vision), stock and savings plans, life and accident insurance, long-term disability, employee assistance programs and other benefits not included in Total Payroll Costs.

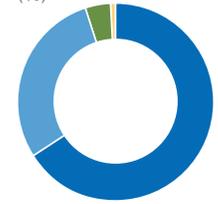
We have applied the 2015 average US\$ exchange rate of 1.28 published in the Annual Report available online at [www.transcanada.com](http://www.transcanada.com). We have applied the Bank of Canada 2015 average exchange rate for Mexican pesos of 0.08. We have added Canadian currency amounts with converted U.S. and Mexico currency amounts for the totals.

Vendors by Country (%)



- 49.6 Canada
- 45.6 U.S.
- 3.5 Mexico
- 1.3 Other

Third-party Spending by Country (%)



- 66.1 Canada
- 29.1 U.S.
- 4.0 Mexico
- 0.8 Other

(Unique supplier count is based on spend greater than CAD\$100,000.)

Contractors are evaluated based on safety, financial, technical, quality and anti-bribery and corruption information during pre-qualification. During supplier selection, factors such as diversity and local spend are also considered and the information collected when the work is awarded.

## SUPPLIER DIVERSITY AND LOCAL PARTICIPATION

In 2015, TransCanada commenced development of a Supplier Diversity and Local Participation program. This program provides an integrated approach for planning, executing, measuring and reporting supplier diversity and local spending in the communities where we do business.

It includes an overarching framework, business policy, processes and tools to enhance supplier diversity, local participation and capacity development opportunities. The desired outcome is to provide required supply chain services to execute TransCanada's business while realizing greater economic benefits for the local communities in association with our projects, and to improve the visibility of TransCanada where we build and operate.

The Supplier Diversity and Local Participation program is guided by the following principles:

- Encourage the identification, registration, qualification, employment and contracting of local and diverse suppliers and individuals across TransCanada's supplier life cycle management process
- Develop and execute procurement policies, processes, systems and tools that enable greater participation by qualified and competitive local and diverse suppliers and individuals
- Identify and communicate, where possible, viable contracting and procurement opportunities for which qualified local and diverse suppliers and individuals can compete
- Support targeted community investments that contribute to the development of local and diverse suppliers and individuals
- Design, implement and support education and training programs that help develop the skills, knowledge and capacity of local and diverse suppliers and individuals
- Track company performance, wherever possible, with regard to supplier diversity and local participation, and regularly report the results internally and externally

Looking forward, TransCanada's Supplier Diversity and Local Participation program will be fully integrated into Supply Chain processes, including supplier registration, qualification and Category Management. In partnership with Supply Chain, Community Relations and Indigenous Relations, we will investigate opportunities

to track direct spending with local and diverse suppliers, and strategic supplier development initiatives.

## ACCESS TO NEW MARKETS

Today, TransCanada's record of safe and reliable energy transportation and its respectful, long-standing relationships with the communities where it operates have made TransCanada one of North America's most sought-after partners in energy infrastructure. With an unprecedented \$13 billion in near-term growth projects, \$45 billion in commercially secured medium to longer term projects and its \$64 billion in existing operations, the company is poised to deliver even more to its communities, shareholders and other stakeholders.

## NATURAL GAS PIPELINES

Our natural gas pipelines business unit continues to be well positioned to capture North America's growing supplies of natural gas and connect them to existing and emerging markets.

In Western Canada, the NGTL natural gas system now has \$5.4 billion of near-term facilities under development to meet new contracted needs for transmission service.

In Eastern Canada, we have a \$700 million expansion underway to connect growing Marcellus supply to Canadian markets. In addition, we came to an agreement with our eastern Canadian customers to add \$2 billion of infrastructure to the system as part of the conversion of portions of the Canadian Mainline for the proposed Energy East pipeline.

In the U.S., we have essentially contracted all of our capacity on the ANR Pipeline, requiring further investment in the system. Early this year, we filed for new rates with the Federal Energy Regulatory Commission to reflect this new investment and the changing dynamics on the system. As always, our preference is to settle the rates with our customers through negotiation, and we will focus on that task through 2016.

Further south, in Mexico, we were awarded a contract to build and operate the US\$500 million Tuxpan-Tula pipeline project and US\$550 million Tula-Villa de Reyes pipeline project. This, combined with our existing network and projects under construction, will bring our total investment in Mexico to over US\$3.5 billion, all underpinned by 25-year throughput agreements with the Comisión Federal de Electricidad (CFE), Mexico's state-owned electrical utility.

In terms of larger scale projects, we continued to advance the Coastal GasLink and Prince Rupert Gas Transmission projects. Together, they represent an opportunity to invest over \$10 billion, and have the potential to position TransCanada as a leader in providing gas transportation service to North America's emerging liquefied natural gas (LNG) export industry. We have received the majority of permits and signed a significant number of agreements with Indigenous communities, positioning us to begin construction once we receive final investment decisions from our customers.

## TRANSCANADA TO ACQUIRE COLUMBIA PIPELINE GROUP



The largest business transaction TransCanada has undertaken since merging with NOVA in 1998 was unveiled in March 2016, as an agreement was reached to acquire Columbia Pipeline Group. **The acquisition will significantly expand our natural gas pipelines business in the U.S.** and provide attractive growth opportunities for our company.

Houston-based Columbia Pipeline Group operates a 26,000-kilometre (15,000-mile) network of interstate natural gas pipelines, extending from New York to the Gulf of Mexico, including a broad footprint in the Marcellus and Utica shale gas plays. **The company also operates one of the nation's largest underground natural gas storage systems.**

"Columbia's assets complement our existing North American footprint, which together will create a 91,000-kilometre (57,000-mile) natural gas pipeline system connecting the most prolific supply basins to premium markets across the continent," says TransCanada's President and CEO Russ Girling. **"At the same time, we will be well positioned to transport North America's abundant natural gas supply to liquefied natural gas terminals for export to international markets."**

In addition, Columbia has \$9.6 billion in commercially secured growth projects that will increase TransCanada's portfolio of near-term projects to \$23 billion, supporting an annual dividend growth rate of eight to 10 per cent through 2020. In order to finance this acquisition, we plan to monetize our U.S. Northeast power generation business and a minority interest in our Mexico natural gas pipelines business, as well as issue new common equity proportionate to the size of the transaction.

**The acquisition is expected to be finalized in the second half of 2016** after receiving the necessary regulatory, government and shareholder approvals.

Read more on TransCanada's blog at [blog.transcanada.com](http://blog.transcanada.com).

Looking forward, we expect supply and demand for natural gas to continue to grow, and we are well positioned to continue to capture a significant portion of that growth.

### LIQUIDS PIPELINES

In our newest business, liquids pipelines, the Keystone Pipeline System has become a premier crude-oil transportation system by providing competitive tolls, shorter transit times and exceptional product quality. Since we began operations in 2010, we have safely delivered more than 1.2 billion barrels of Canadian and U.S. oil to U.S. refineries in the U.S. Midwest and Gulf Coast. Over the last year, we increased the average throughput on Keystone by over 30,000 barrels per day, allowing us to secure additional 20-year contracts, bringing our total contract position on Keystone to 545,000 barrels per day. Keystone is expected to generate approximately US\$1 billion in earnings before interest, taxes, depreciation and amortization (EBITDA) annually going forward.

The success of the base Keystone Pipeline System has positioned us well for over \$3 billion in smaller scale projects at both ends of the system in Alberta and Texas. These include both the Grand Rapids and Northern Courier pipelines in Alberta that connect us more closely to the supply sources, and the Houston Lateral and CITGO Pipeline that bring us closer to the refinery markets.

Our \$15.7 billion Energy East pipeline will provide our western Canadian customers access to eastern Canadian refineries and provide tidewater access to the U.S. Northeast, Gulf Coast and growing international markets. Market access remains critical for Canadian producers,

as does the certainty of supply for the refiners. In late 2015, we amended our project application to include over 700 route and scope changes as a direct result of listening to stakeholders and efforts to avoid sensitive environmental areas. As we work through the regulatory process in 2016-2017, we will continue to engage and consult with the many communities along the route.

While approval for cross-jurisdictional crude oil pipelines has proved difficult, it is clear that the safest and most environmentally responsible way to transport large volumes of oil long distances is in a pipeline. It is our expectation that new GHG regulations in Alberta will allow the regulatory discussion to move back to objectivity, facts and science. We remain very confident that an objective review of the project will result in a positive decision.

## ENERGY

In 2015, despite weak gas and power prices, primarily in Western Canada, our diverse portfolio of primary contracted power generation delivered \$1.3 billion of comparable EBITDA, which was similar to 2014.

With the 2016 agreement to acquire Columbia Pipeline Group, TransCanada expects portfolio management to play an important role in the permanent financing of the acquisition through the planned monetization of U.S. Northeast merchant power assets and a minority interest in our Mexican natural gas pipeline business. An acquisition of this magnitude required us to examine our existing asset base and financial structure and make some changes to our portfolio to both raise funds for the purchase

and ensure we are positioned to continue maximizing value for our shareholders. The planned monetization of U.S. Northeast merchant power assets is expected to further enhance stability and predictability of consolidated revenue streams.

Power generation will still play a role in TransCanada's overall strategy, and we will pursue new opportunities where they make sense. We continue to be a significant player in power generation and marketing in Canada through our gas-fired generation facilities in Alberta, Ontario, Québec, and New Brunswick.

In December 2015, we entered into a very significant agreement with the Ontario Independent Electricity System Operator (IESO) to extend the operating life of the Bruce Power facility to 2064. The agreement will result in \$6.5 billion (2014 dollars) in capital investment to refurbish the remaining reactors. All of the power produced at Bruce Power is purchased by the IESO at a fixed and escalating price for the life of the facility. This agreement secures reliable, affordable, emission-less power for Ontario residents for many decades to come, while providing a secure and stable market for Bruce Power for the remainder of its life.

Also in Ontario, we continued construction of the fully contracted \$1.2 billion Napanee Generating Station, which is expected to begin operating in December 2018.

Looking forward, the company is well positioned to take advantage of the transition from coal-fired generation to natural gas, nuclear and renewables.

## DEVELOPING OUR PEOPLE

Our strong core values and development opportunities are TransCanada's edge in a competitive market. We attribute much of our success to our talented and diverse workforce. Our definition of success is broad and includes our safety record, professionalism and dedication to our values. All these successes speak to the quality of our people and, indeed, contribute to our financial strength as a company.

## ABOUT OUR PEOPLE

We truly believe that our people are our most important asset.

As of April 1, 2016, TransCanada employs more than 5,400 people across North America. We continue to rely on our human resources team, as well as senior management and leaders, to ensure the right people are in place to support our ongoing success.

In order to position the company to boost effectiveness in our operations and improve competitiveness in our service delivery, in 2015 we commenced a business restructuring and transformation initiative. We reorganized to move greater accountability for operations, capital spending and support services directly into our three lines of business. We firmly believe placing greater control in the hands of those closest to the assets will improve safety, availability, cost control and, ultimately, profitability. We continue to progress this initiative with further work to be completed in 2016. These adjustments are not related to any specific project or decision.

Changes in staffing align with changes that we're making to our structure to remain competitive and deliver shareholder value, as well as in response to falling oil prices and its effect on our customers. These two factors mean that we need to drive down costs and pursue our projects more efficiently and strategically. This includes having to make difficult decisions that affect our workforce.

Our aim was and is always to be fair and respectful in this process. We are committed to ensuring that all employees have the opportunity to hear restructuring and transformation information from their leaders first and that they have the support and tools needed to help manage the transition.

## EMPLOYEES BY COUNTRY

	2011	2012	2013	2014	2015
Canada	2,658	2,994	3,487	4,010	3,603
U.S.	1,648	1,771	1,859	1,914	1,757
Mexico	8	58	91	135	152
Total number of employees	4,314	4,823	5,437	6,059	5,512

## VOLUNTARY, INVOLUNTARY AND TOTAL EMPLOYEE TURNOVER PERCENTAGES\*

	2011	2012	2013	2014	2015
Employee voluntary turnover rate (%)	5.2	3.8	4.1	4.1	5.1
Employee involuntary turnover rate (%)	1.5	1.1	1.4	3.4	12.3
Employee total turnover rate (%)	6.7	4.9	5.5	7.5	17.4

\*Beginning in 2015, employee turnover rates include Mexico.

## CONTRACT AND UNION EMPLOYEES

	2011	2012	2013	2014	2015
Contract professionals (#)	–	–	2,525	2,796	2,442
Employees represented by independent trade union or covered by collective bargaining agreements (%)	5.5	4.9	4.51	4.27	4.7

## DIVERSITY AND INCLUSION

We believe that diversity drives innovation and collaboration, and sustains continued growth. Inclusion creates a work environment where productivity, integrity and responsibility thrive, and where our core values are realized.

As a company that operates in three countries, across multiple provincial and state lines, having a diverse workforce is essential. TransCanada's diversity and inclusion vision is "to reflect the communities in which we live and work and ensure everyone is respected and feels that they can contribute to their full potential."

In 2014, we developed our 2014-2016 Diversity and Inclusion Strategic Plan to attract the most diverse range of candidates. To guide our strategy and provide an external benchmark, TransCanada adopted the Canadian Human Rights Commission's Human Rights Maturity Model (HRMM). While the HRMM is a Canadian model, the framework is grounded in fundamental human rights principles and, therefore, applies to all our locations, including the U.S. and Mexico.

To support our diversity and inclusion efforts internally, all new employees are required to complete TransCanada's diversity training within 30 days of starting their job.

As part of its ongoing Leadership Development Program, TransCanada presents a training module entitled the "Business Case for Diversity" to new leaders, highlighting the importance of a diverse and inclusive workplace.

Internally, TransCanada supports three employee resource groups (ERGs): Evolve, Indigenous and Veterans' Network. Each ERG works separately and also collaboratively to promote inclusion in TransCanada's workplace and provide advice and support in addressing our business needs of attracting, recruiting and retaining a diverse workforce.

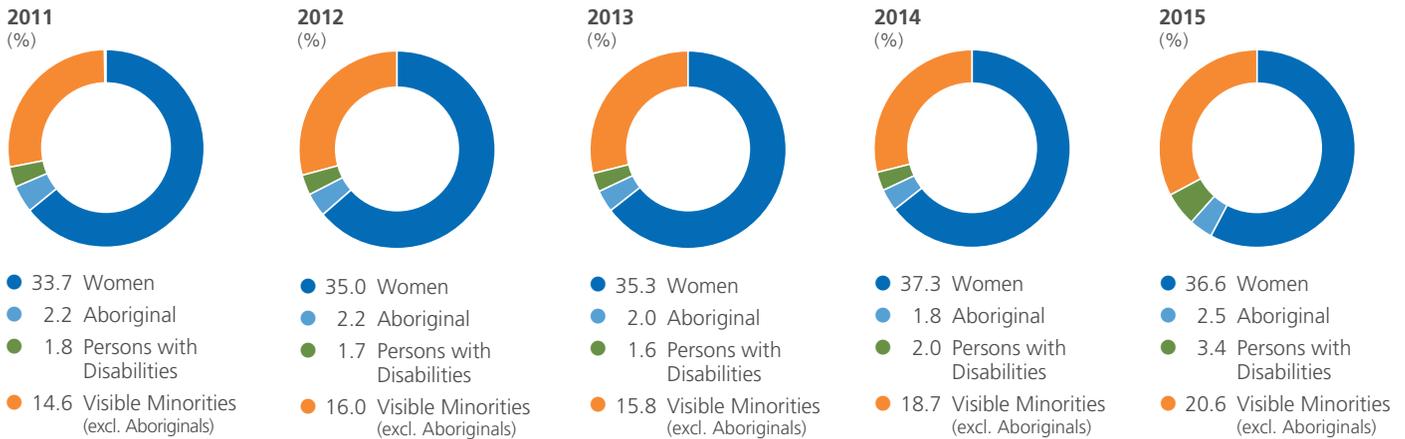
Photo at right: We believe that our people are our most important asset and that a diverse workforce is essential to the success of our company.

# DIVERSITY DRIVES INNOVATION

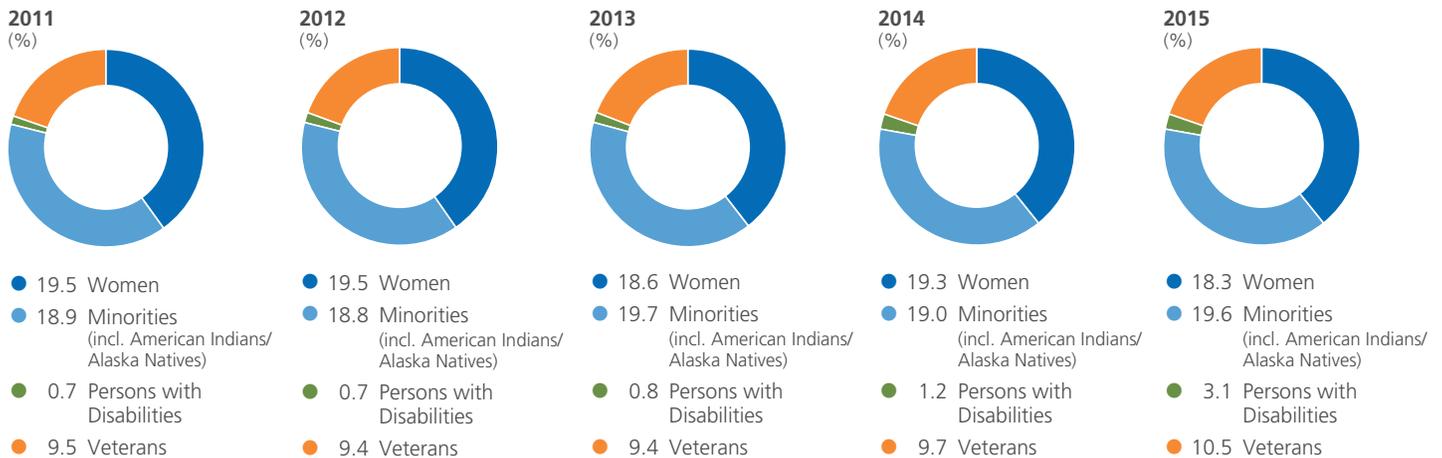


TransCanada was honoured by the U.S. Department of Defense's Employer Support of the Guard and Reserve with an award for strong military support.

## CANADIAN DIVERSITY BREAKDOWN



## AMERICAN DIVERSITY BREAKDOWN



### Women in Leadership

Please see the Management Diversity section on page 83 for more information on TransCanada's governance, approach and goals for women in management.

	2011	2012	2013	2014	2015
Women in workforce (%)	28.3	29.3	29.5	31.5	30.5
Women in executive management	12.5	12.5	22.0	22.0	22.2
Women in top management	9.23	9.09	9.0	14.7	15.4
Women in junior management	17.2	22.03	23.0	24.79	24.4

Photo at right: While our workforce and assets are spread across North America, TransCanada's headquarters are located in Calgary, Alberta, Canada.



# HIGH STANDARDS

You cannot be in business for over 65 years and have the kind of relationships and importance to the North American economy that TransCanada has without living and breathing a strong set of values every day. We pride ourselves on being a company that our stakeholders can count on to make the right choices and do the right thing.

**ROB JACOBUCCI**  
Vice-President,  
Internal Audit and Corporate Compliance

## CORPORATE GOVERNANCE AND ETHICS

## GOVERNANCE HIGHLIGHTS

Size of board	12
Percentage of independent directors	92%
Percentage of women on board	25%
Number of board interlocks	0
Corporate governance guideline on board diversity	Yes
Average director age	63
All committees independent	Yes
Annual director elections	Yes
Individual director elections	Yes
Majority voting policy	Yes
Clawback policy	Yes
Double-trigger vesting on change of control	Yes
Separate chair and CEO	Yes
Director retirement age	70
Director share ownership requirements	4x cash + equity retainer
Executive share ownership requirements	5x (CEO), 2x (other named executives)
In-camera sessions at every board and committee meeting	Yes
Annual say on pay	Yes
Code of business ethics	Yes
Board, committee and director evaluations annually	Yes
Board orientation and education program	Yes

As of February 23, 2016

## CORPORATE GOVERNANCE AND ETHICS

### GOVERNANCE

We believe that strong corporate governance improves corporate performance and benefits all stakeholders. The Board of Directors and the members of TransCanada's management are committed to the highest standards of ethical conduct and corporate governance.

Detailed governance information is available in TransCanada's Management Information Circular online at [www.transcanada.com](http://www.transcanada.com) and on SEDAR at [www.sedar.com](http://www.sedar.com).

### ABOUT OUR GOVERNANCE PRACTICES

TransCanada is a public company listed on the Toronto Stock Exchange (TSX) and the New York Stock Exchange (NYSE), and we recognize and respect rules and regulations in both Canada and the U.S.

Our corporate governance practices comply with the Canadian governance guidelines, which include the governance rules of the TSX and Canadian Securities Administrators (CSA):

- National Instrument 52-110, Audit Committees
- National Policy 58-201, Corporate Governance Guidelines
- National Instrument 58-101, Disclosure of Corporate Governance Practice (NI 58-101)

We also comply with the governance listing standards of the NYSE and the governance rules of the U.S. Securities and Exchange Commission (SEC) that apply, in each case, to foreign private issuers.

Our governance practices comply with the NYSE standards for U.S. companies in all significant respects, except as summarized on our website at [www.transcanada.com](http://www.transcanada.com). As a non-U.S. company, we are not required to comply with most of the governance listing standards of the NYSE. As a foreign private issuer, however, we must disclose how our governance practices differ from those followed by U.S. companies that are subject to the NYSE standards.

We benchmark our policies and procedures against major North American companies to assess our standards and we adopt best practices as appropriate. Some of our best practices are derived from the NYSE rules and comply with applicable rules adopted by the SEC to meet the requirements of the Sarbanes Oxley Act of 2002 and the Dodd-Frank Wall Street Reform and Consumer Protection Act.

### BOARD CHARACTERISTICS

Our board and its members exemplify strong principles of corporate governance:

- an independent, non-executive chair
- an effective board size
- all directors except our CEO are independent

- knowledgeable and experienced directors who ensure that we promote ethical behaviour throughout TransCanada
- qualified directors who can make a meaningful contribution to the board and the development of our strategy and business and oversight of our risk management processes
- significant share ownership requirements to align the directors' interests with those of our shareholders
- annual assessments of board, chair, committee and director effectiveness

### SIZE AND COMPOSITION

TransCanada's articles state that the board must have between eight and 15 directors. The board is currently comprised of 12 directors. The board believes this size is appropriate based on the scope of our business, the skills and experience of the nominated directors and the four standing committees, and to achieve effective decision-making.

We believe our board must consist of qualified and knowledgeable directors, and include directors with direct experience in the oil and gas, pipelines and power sectors.

Detailed information on the nominated directors is available in the Management Information Circular online at [www.transcanada.com](http://www.transcanada.com) and on SEDAR at [www.sedar.com](http://www.sedar.com).

## BOARD DIVERSITY

We have been committed to a diverse board since 1999, when our corporate governance guidelines were revised to include a variety of diversity criteria, which bring a range of perspectives to the board that are not limited to gender diversity.

While the governance committee has not set a specific target for the number of women directors on our board, the committee believes that a diverse board with a variety of perspectives enhances our decision-making and helps keep the board informed and effective. We do not believe targets are an appropriate method of increasing diversity on the board. Instead, we believe that a process-based method of reviewing directors on a variety of diversity factors (including gender) is more appropriate, particularly given the business environment in which TransCanada operates.

In order to achieve a diverse board, the committee focuses on the process surrounding director nomination. Each year, the committee reviews the general and specific criteria applicable to candidates to be considered for nomination to the board. These guidelines outline the criteria that the committee considers when evaluating potential director nominees. We have not adopted a written policy with respect to the identification and nomination of women directors because we believe that encompassing our diversity criteria in our written corporate governance guidelines available online at [www.transcanada.com](http://www.transcanada.com) is more appropriate than a separate written policy.

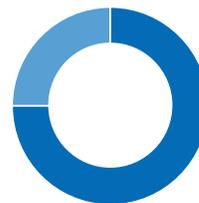
Our corporate governance guidelines provide that, when choosing director nominees, the committee takes into account the diversity of backgrounds, skills and experience, and personal characteristics such as age, gender, and geographic residence among the directors along with the key common qualities required for effective board participation. The committee regularly considers the current number of women on the board when selecting director candidates by considering gender, in addition to other characteristics, as one of the factors.

The committee aims to maintain the composition of the board in a way that provides the best mix of skills and experience to guide our strategy and oversee ongoing business operations. TransCanada does not have term limits for directors, but does have a retirement policy to encourage board renewal, as discussed in director tenure, on page 48 of the Management Information Circular available online at [www.transcanada.com](http://www.transcanada.com) and on SEDAR at [www.sedar.com](http://www.sedar.com).

The committee ensures that the list of potential director candidates discussed includes a reasonable number of qualified women candidates, but, ultimately, decisions are made based on the qualifications of the candidates and the expertise needs of the board.

We believe that this process is effective as 25 per cent of the board is currently composed of women directors.

## Board Composition by Gender



- 9 Men
- 3 Women

## INDEPENDENCE

An independent board is a fundamental principle of governance. We believe that the majority of our directors must be independent in accordance with legal requirements, and consistent with the independence criteria of the regulations of the SEC and rules of the NYSE.

The governance committee and the board review the independence of each board member and nominated director against these criteria once a year. It also reviews family relationships and associations with companies that have relationships with TransCanada when it reviews director independence.

The board has determined that all of its directors are independent, except for Russ Girling because of his role as President and CEO. Other than Mr. Girling, none of the directors have a direct or indirect material relationship with TransCanada that could reasonably be expected to interfere with the exercise of their independent judgment.

### Independent Chair

The chair is appointed by the board, and serves in a non-executive capacity. We have had separate chair and CEO positions since our incorporation in 2003 and at our predecessor company since 1994. Barry Jackson has served as the independent non-executive chair since April 30, 2005.

### Independent Advice

The board and each of its four standing committees can retain independent advisors to assist in carrying out their duties and responsibilities.

### Serving on Other Boards

To ensure we do not have overboarding or interlocking relationships that would conflict with a director's independence or interfere with fulfilling their board duties and responsibilities, we have the following policy:

- directors may not serve on more than six boards in total
- audit committee members may not serve on more than three audit committees in total.

Currently, none of our directors serve on more than five boards in total, and none of our audit committee members serve on more than two audit committees in total.

We discuss the time commitment and duties and responsibilities with every candidate so they have a full understanding of the role and our expectations of directors. The governance committee monitors director relationships to ensure their business associations do not hinder their role as a TransCanada director or board performance overall.

The board believes that it is important for it to be composed of qualified and knowledgeable directors. As a result, due to the specialized nature of the energy infrastructure business, some of the nominated directors are associated with or sit on the boards of companies that ship natural gas or liquids through our pipeline systems. Transmission services on most of TransCanada's pipeline systems in Canada and the U.S. are subject to regulation and, accordingly, we generally cannot deny transportation services to a credit-worthy shipper. As discussed above, the governance committee monitors relationships among directors to ensure that business associations do not affect the board's performance.

If a director declares that they have a material interest in a material contract or transaction that is being considered by the board, the director leaves the meeting so the matter can be discussed and voted on.

See the director profiles starting on page 18 of the Management Information Circular available online at [www.transcanada.com](http://www.transcanada.com) and on SEDAR at [www.sedar.com](http://www.sedar.com) for the other public company boards each nominated director serves on.

### Independent of Management

Our corporate governance guidelines stipulate that the board must meet at the end of each board meeting, in-camera, without management present. In 2015, the independent directors met separately before and at the end of every regularly scheduled board meeting.

Our board has adopted the policy of holding in-camera sessions at each meeting of its committees without management. Members of management meet with the independent directors upon request.

### PRINCIPAL SHAREHOLDERS

Our directors and executives are not aware of any person or corporation that beneficially owns, directly or indirectly, or exercises control or direction over, more than 10 per cent of our outstanding shares.

### RELATED PARTY DISCLOSURES

While a disclosure process exists, TransCanada does not currently have any related party transactions to disclose.

### GOVERNANCE PHILOSOPHY

We believe that effective corporate governance improves corporate performance and benefits all shareholders – and that honesty and integrity are vital to ensuring good corporate governance.

The board has formally adopted the corporate governance guidelines recommended by the governance committee. These guidelines address the structure and composition of the board and its committees, and clarify the responsibilities of the board and management.

## ETHICAL BUSINESS CONDUCT

Our code of business ethics (the code) incorporates principles of good conduct and ethical and responsible behaviour to guide our decisions and actions and the way we conduct business. Please see the Code of Business Ethics section on page 94 for more information.

### Conflicts of Interest

The code covers potential conflicts of interest.

### Serving on Other Boards

The board considers whether directors serving on the boards of other entities, including public and private companies, Crown corporations and other state-owned entities, and non-profit organizations, pose any potential conflict. The board reviews these relationships annually to determine that they do not interfere with any of our directors' ability to act in our best interests. If a director declares a material interest in any material contract or material transaction being considered at the meeting, the director is not present during the discussion and does not vote on the matter.

Our code requires employees to receive consent before accepting a directorship with an entity that is not an affiliate. The CEO and executive vice-presidents (our executive leadership team) must receive the consent of the governance committee. All other employees must receive the consent of the Corporate Secretary or her delegate.

### Affiliates

The board oversees relationships between TransCanada and any affiliates to avoid any potential conflicts of interest. This includes our relationship with TC PipeLines, LP, a master limited partnership listed on the NYSE.

## AUDITOR INDEPENDENCE

Pursuant to the audit committee charter, the audit committee reviews and approves our hiring policies for partners, employees and former partners and employees of our current and former external auditors to ensure auditor independence is maintained. The committee also monitors adherence to our policy. The committee also has a pre-approval policy with respect to permitted non-audit services, to help ensure auditor independence is maintained.

Our Annual Information Form (AIF) includes more information about the audit committee, including the committee charter. The 2015 AIF is available on our website at [www.transcanada.com](http://www.transcanada.com) and on SEDAR at [www.sedar.com](http://www.sedar.com).

## SHARE OWNERSHIP

We have share ownership requirements for our directors and executives to align their interests with those of our shareholders. Ownership levels are significant, and directors and executives must meet the requirements within five years of assuming their position. As of February 23, 2016, all of our directors who have served for at least five years meet the share ownership requirements, as do most of our directors who have served for fewer than five years.

See Aligning the interests of directors and shareholders on page 64 and Aligning the interests of executives and shareholders on page 83 of the Management Information Circular available online at [www.transcanada.com](http://www.transcanada.com) and on SEDAR at [www.sedar.com](http://www.sedar.com) for more information.

## ROLE AND RESPONSIBILITIES OF THE BOARD

The board's primary responsibilities are to foster TransCanada's long-term success, oversee our business and affairs and management, and to act honestly, in good faith and in the best interests of TransCanada.

The board's main objective is to promote our best interests, to maximize long-term shareholder value and to enhance shareholder returns.

The board has key duties and responsibilities, delegates some duties to its four standing committees, and discharges others to management for managing the day-to-day affairs of the business.

The chair is responsible for ensuring that the board is organized properly, functions effectively and meets its obligations and responsibilities. The chair's role includes coordinating the affairs of the board, working with management (primarily the CEO), and ensuring effective relations with board members, shareholders, other stakeholders and the public.

## CHARTERS AND POSITION DESCRIPTIONS

The board and each committee have adopted a charter that outlines its principal responsibilities.

The charters are reviewed every year to ensure they reflect current developments in corporate governance and corporate best practices, and the board approves any necessary changes.

The board charter describes the:

- composition and organization of the board
- duties and responsibilities for managing our affairs, and oversight responsibilities for:
  - management and human resources
  - strategy and planning
  - financial and corporate issues
  - business and risk management, including compensation risk
  - policies and procedures
  - compliance reporting and corporate communications
  - general legal obligations, including its ability to use independent advisors as necessary

The board has also developed position descriptions for the chair of the board, each committee chair and the CEO. The position descriptions for the chair of the board and the CEO are part of their terms of reference. The position descriptions for the chair of each committee are contained in the committee charters.

The board charter, committee charters and position descriptions for the chair of the board and the CEO are posted on our website at [www.transcanada.com](http://www.transcanada.com).

## STRATEGIC PLANNING

We have a multi-year strategic plan that balances risk and reward.

The board provides oversight and direction in the strategic planning process to ensure management develops corporate strategies that support our vision to be the leading energy infrastructure company in North America. We set annual corporate objectives to support our core strategies for achieving growth and creating value for shareholders. These are established with and approved by the board every year. The governance committee oversees the processes used for the preparation and articulation of our strategic plan.

The board monitors management's progress toward achieving the strategic plan, and discusses a broad range of matters related to our strategy, business interests and the dynamic environment in which we operate at each regularly scheduled meeting. Management also reports regularly on our operational and financial performance.

The board generally holds a formal session over two days on strategic planning every year and several sessions on strategic issues throughout the year. At strategic planning sessions, management and the board review and discuss management's strategic plan, with the strategic plan put forward to the board for approval. The strategic issues sessions provide the board with the opportunity to consider specific strategic issues in detail, which provides more context during the strategic planning process. The frequency of these strategic sessions provides the board with the time they need to discuss and address strategic issues.

## STRATEGIC PLANNING



- BOARD provides input/feedback and approves strategic plan
- MANAGEMENT implements strategic plan
- BOARD has strategic issues sessions to focus on specific strategic issues
- BOARD assesses implementation and provides input on overall strategic plan
- MANAGEMENT prepares strategic plan using board input and through meetings with senior executives
- MANAGEMENT presents strategic plan to the board

In addition to the ongoing strategic planning process, the board and governance committee address emerging strategic issues throughout the year as they arise.

See Meeting attendance on page 30 of the Management Information Circular for more information about the meetings held in 2015 and Orientation and education on pages 43 and 44 of the Management Information Circular available online at [www.transcanada.com](http://www.transcanada.com) and on SEDAR at [www.sedar.com](http://www.sedar.com) for more information about the strategic issues and planning sessions attended by board members in 2015.

## RISK OVERSIGHT

### Process

The board and its committees are responsible for risk oversight, including overseeing management systems and processes for identification, evaluation, prioritization, mitigation and monitoring of risk. Our directors have a broad range of experience and skills in risk management and, as a result, the board is highly engaged and qualified to participate in a meaningful discussion of key business risks with management at board and committee meetings.

A key business risk is generally defined as an exposure that has the potential to materially impact TransCanada's ability to meet or support its business, operational or strategic objectives.

TransCanada maintains a comprehensive corporate risk register which identifies principal risks associated with our business and seeks input across the organization to ensure it reflects any new key business risks as our business grows and our environment evolves. In addition, 'top-of-mind' concerns

are solicited from our senior executives and presented to the board. This process recognizes the dynamic and evolving business environment in which we operate and allows management to keep the board informed of existing and emerging risks and how those risks are managed or mitigated in accordance with TransCanada's risk parameters and risk tolerance.

All risks identified under the corporate risk register are categorized using a risk responsibility matrix which establishes clear accountabilities to the board, committees and executives responsible for specific oversight of each risk.

Our risks are categorized according to these main areas:

- corporate strategy
- business strategy and execution
- business opportunity
- commercial operations
- physical operations
- general corporate risk (including compensation risk)

The governance committee oversees our risk management process. The committee reviews 'top-of-mind' business risks with management at each committee meeting and the risk responsibility matrix with management annually to ensure there is proper board and committee oversight according to the terms of their charters, and that we have management programs in place to mitigate those risks. It also recommends, along with the respective committee (or executive) assigned responsibility for specific risks, any enhancements to our risk management program and policies to the board.

In addition, all projects and opportunities recommended by management to the board for approval include specific descriptions on the associated risks. The risk discussion associated with each project forms a part of the board's determination of whether to approve projects or pursue opportunities.

Our process ensures that the board is fully informed of the interrelationship between the business environment and risks, and is intended to facilitate and stimulate discussion of our key business risks.

Our AIF and Annual Report include more information about the risks applicable to TransCanada. The 2015 AIF and the 2015 Annual Report are available on our website at [www.transcanada.com](http://www.transcanada.com) and on SEDAR at [www.sedar.com](http://www.sedar.com).

### Committee Responsibilities

The committees are also involved in risk oversight in their respective areas to ensure a robust risk management process with appropriate expertise, attention and diligence given to each key business risk. The following chart includes the risk focus area of each committee, and information on each risk focus area. The committees receive updates regularly from management on their risk focus area, and update the board on their risk oversight activities regularly. In addition to its specific focus area, each committee maintains an overall awareness of risk management for TransCanada, and includes other issues in its reports to the board as appropriate.

## COMMITTEE RESPONSIBILITIES

Committee	Risk focus	Description
Audit	Financial risk	<ul style="list-style-type: none"> <li>Oversees management's role in monitoring compliance with financial risk management policies and procedures and reviewing the adequacy of our financial risk management.</li> <li>Ensures that:               <ul style="list-style-type: none"> <li>our financial risk management strategies, policies and limits are designed to ensure our risks and related exposures are in line with our business objectives and risk tolerance</li> <li>risks are managed within limits that are ultimately established by the board, implemented by senior management and monitored by our risk management and internal audit groups</li> </ul> </li> <li>Oversees cybersecurity and its related risks to TransCanada.</li> </ul>
Governance	Risk management process and management allocation of risks	<ul style="list-style-type: none"> <li>Reviews TransCanada's 'top-of-mind' business risks with management at each committee meeting.</li> <li>Oversees the risk responsibility matrix with management annually to ensure there is proper board and committee oversight according to the terms of their charters.</li> <li>Ensures that we have management programs in place to mitigate those risks.</li> <li>Recommends, along with the respective committee (or executive) assigned responsibility for specific risks, any enhancements to our risk management program and policies to the board.</li> </ul>
Health, Safety and Environment	Operational risk, people and process safety, security and environmental risk	<ul style="list-style-type: none"> <li>Monitors compliance with our health, safety and environment (HSE) corporate policy through regular reporting from management, within the framework of our integrated HSE management system that is used to capture, organize and document our related policies, programs and procedures.</li> </ul>
Human Resources	Human resources and compensation risk	<ul style="list-style-type: none"> <li>Oversees the compensation policies and practices to effectively identify and mitigate compensation risks and discourage members of the executive leadership team or others from taking inappropriate or excessive risks and to ensure our compensation policies are not reasonably likely to have a material adverse effect on TransCanada.</li> </ul>

## MANAGEMENT DIVERSITY

Our executive leadership team includes our president and CEO, and all of our executive vice-presidents. Senior management includes our executive leadership team, as well as our senior vice-presidents and vice-presidents. In 2013, management set and

the board reviewed three- and five-year goals to increase the number of women in senior management.

Setting these goals supports our long-term focus on ensuring TransCanada has a capable and diverse senior management team. We believe that having a defined

goal for the representation of women in senior management is an effective way to increase the number of women on our executive leadership team over the long term. More women at the senior management level provides a larger group of women that can be considered for promotion to executive positions.

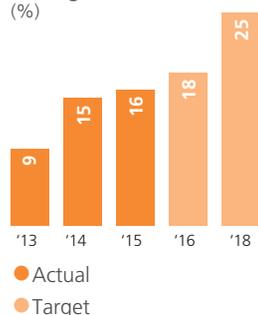
In order to achieve these goals, we have focused on identifying, assessing and developing high potential candidates from our existing talent pool as well as strategic hires. High potential candidates are each assigned a sponsor on the executive leadership team who works with them to increase their exposure within the organization and at the board.

The executive leadership team reviews and discusses this talent pool regularly and approves all senior management appointments. The board approves all appointments to the executive leadership team.

Progress towards these goals is reviewed and assessed by the human resources committee and executive leadership team at least annually to ensure we have a qualified pool of women, and that the women in senior management are being adequately supported and developed. The board receives progress reports on our goals annually.

We have achieved notable progress towards achieving our goals at the senior management level.

**Women in Senior Management**  
(%)



The board encourages the inclusion of women candidates for consideration for all executive officer positions, but, ultimately, decisions are made based on the qualifications of the candidates.

We do not have specific goals for the executive leadership team. In 2015, 25 per cent of our executive leadership team members (two out of eight) were women.

### ACCESS TO MANAGEMENT

The board has complete access to management, but gives reasonable advance notice to avoid disrupting the business and operations. The board chair and committee chairs also connect with relevant members of the executive leadership team as needed.

The board encourages the executive leadership team to include key managers in board and committee meetings so they can share their expertise on specific matters. This gives the board an opportunity to meet individuals who have the potential to assume more senior positions in the future, and for these individuals to gain exposure to the board.

### ORIENTATION AND EDUCATION

New directors participate in an orientation program featuring sessions on corporate strategy, our main business issues, and historical and financial information about TransCanada. They also have an opportunity to visit and tour our facilities and project sites and meet with the executive leadership team and other directors. Our 2015 program included sessions on strategic issues.

We tailor the sessions for each director based on individual needs and their specific areas of interest. New directors also meet one-on-one with members of the executive leadership team for an overview of the different areas of our business and operations and a discussion of key areas of interest. Briefing sessions are also held for new committee members.

Directors receive a reference manual with:

- details about their duties and obligations as a member of the board
- information about our business and operations
- copies of the board and committee charters
- copies of past public filings, and
- documents from recent board meetings

The governance committee reviews the orientation program and manual every year so they continue to meet our needs and those of new directors.

The committee also develops the continuing education program every year based on current and emerging issues, our corporate objectives and input from other directors.

Continuing education helps strengthen a director's knowledge and understanding of the business, industry, governance and other issues. Senior management and external experts make presentations to the board and committees from time to time on various topics related to the business, including changes to legal, regulatory and industry requirements. Continuing education is also conducted on an informal basis and our directors are provided with articles and publications of interest.

We suggest seminars and education programs for our directors that may be relevant, and pay the registration fee and travel expenses as appropriate. We also offer to pay annual fees for memberships with organizations that are appropriate and provide relevant publications and educational opportunities to our directors.

See Orientation and education on pages 43 and 44 of the Management Information Circular available online at [www.transcanada.com](http://www.transcanada.com) and on SEDAR at [www.sedar.com](http://www.sedar.com) for more information on the 2015 Director education program.

## BOARD EFFECTIVENESS AND DIRECTOR ASSESSMENT

The governance committee oversees an assessment of the performance of the board, the chair, committees and individual directors annually and reports the results to the board.

Interviews include questions about effectiveness, communication and personal and individual peer performance and solicit input from directors about areas for potential improvement. The interviews are open-ended to encourage discussion and seek specific input on topics such as risk, strategy and governance.

The governance committee believes the interview process is the most effective way for directors to give feedback that can be reviewed by the entire board. The committee also monitors developments in board governance and evolving best practices in corporate governance.

In 2015, the assessment process showed that the chair, each director, and all committees are functioning effectively and fulfilling the mandates set out in the board and committee charters.

### DIRECTOR TENURE

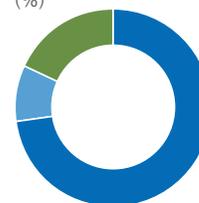
The governance committee reviews factors such as age, changes in principal occupation, consistently poor attendance, poor performance and other relevant circumstances that may trigger the resignation or retirement of a director.

Once a director turns 70, he or she will not stand for re-election at the next annual meeting. The board may waive the retirement age for a director if:

- they have not served seven consecutive years by age 70, or
- their continued service is in the best interests of the company, because of their specific skills and experience

TransCanada does not use term limits for our directors. We do not believe term limits are an effective mechanism to promote board renewal. In addition to the annual director assessment, which ensures that each of our board members, committees and the board is functioning effectively, the committee reviews director succession planning at least annually. This review provides the opportunity for the committee to focus on creating a board with an appropriate mix of experience and skills to guide the long-term strategy and ongoing business operations of the company. Our flexible retirement policy promotes effective board turnover without limiting the mix of skills and experience on the board.

**Current Composition of Board by Years of Service**  
(%)



- 73% 0-5 Years
- 9% 6-10 Years
- 18% 11-15 Years

### BOARD RENEWAL

The governance committee regularly assesses the skill set of each director, and reviews it against the director retirement schedule, their ages and the composition of each committee. The review also takes into account the desirability of maintaining a reasonable diversity of backgrounds, and character and behavioural qualities such as integrity.

The governance committee, with input from the chair of the board and the CEO, is responsible for identifying suitable director candidates, and canvasses the entire board for potential nominees. The committee also uses a third-party recruitment specialist to identify potential director candidates. The committee is responsible for assessing the individuals and proposing the strongest candidates for nomination. An evolving roster of suitable director candidates is maintained by the committee.

The committee looks for a mix of skills and experience required for overseeing our business and affairs. The board considers personal characteristics such as gender, ethnic background and geographic residence when looking at diversity. However, candidates are nominated as directors based on their background and ability to contribute to the board and committee meetings.

The committee ensures that the board seeks expertise in the following key areas:

- Accounting and finance
- Energy/utilities
- Engineering
- Governance
- Government/regulatory
- Health, safety and environment
- International markets
- Law
- Management/leadership
- Oil and gas/utilities
- Operations
- Risk management

Candidates who are being nominated for the first time must have experience in industries similar to ours, or experience in general business management or with corporations that are similar in size and scope. Candidates must also be willing to serve on the board, be able to devote the necessary time to fulfil their duties and responsibilities and be under 70 years old.

The committee recommends potential candidates based on their qualifications and independence and how these qualities balance with the skill set of the current board, the structure and composition of the committees and the director retirement schedule. This assessment helps the board determine the best mix of skills and experience to guide our business operations and our long-term strategy.

## ENGAGEMENT

We believe it is important to engage with our stakeholders.

Members of our board engage with governance organizations and shareholder advocacy groups to discuss emerging best practices and provide commentary on how we maintain our high standard of corporate governance.

TransCanada regularly engages with our shareholders and other stakeholders. Our executive leadership team hosts teleconferences to discuss our quarterly financial and operating results. The teleconferences are webcast and available to analysts, media, shareholders and the public. We also hold an annual investor day in November, where we discuss our financial outlook, business operations and strategy. Our executive and senior

management also speak at investor conferences and meet one-on-one with investors as part of our shareholder engagement. In 2015, we engaged with institutions representing more than 50 per cent of current outstanding shares.

A list of upcoming and past events and presentations, including presentation slides and webcasts, where available, can be found online at [www.transcanada.com](http://www.transcanada.com).

You may contact our investor relations department directly by phone, email, fax or regular mail at:

Investor Relations  
TransCanada Corporation  
450 1st Street S.W.  
Calgary, Alberta  
Canada T2P 5H1  
[investor\\_relations@transcanada.com](mailto:investor_relations@transcanada.com)  
Phone: 1.800.361.6522  
Fax: 1.403.920.2457

## COMMUNICATING WITH THE BOARD

Shareholder engagement allows us to hear directly from shareholders and other important stakeholders about any issues or concerns.

Shareholders, employees and others can contact the board directly by writing to:

Chair of the Board of Directors  
c/o Corporate Secretary  
TransCanada Corporation  
450 1st Street S.W.  
Calgary, Alberta  
Canada T2P 5H1

Photo at right: Our leaders help create a positive work environment for all employees where our core values of integrity, responsibility, collaboration and innovation are realized.

# EFFECTIVE LEADERSHIP



Since 2012, the percentage of women in executive management at TransCanada has increased from 12.5 per cent to over 22 per cent in 2015.

The board, including committee chairs, are available at TransCanada's annual meeting to receive questions from shareholders. Please visit [www.transcanada.com](http://www.transcanada.com) for information on annual meetings.

## BOARD COMMITTEES

The board has four standing committees:

- Audit committee
- Governance committee
- Health, safety and environment committee
- Human resources committee

Each of the committees is comprised entirely of independent directors.

The governance committee is responsible for reviewing the composition of each committee and recommending any changes once new directors are appointed or elected to the board. Each committee must consist entirely of independent directors, except for the health, safety and environment committee, which must have a majority of independent directors. Currently all members of the health, safety and environment committee are independent. Each committee has the authority to retain advisors to help carry out its responsibilities. The board does not have an executive committee.

Each committee reviews its charter at least once a year, and recommends any changes to the governance committee and the board. You can find the committee charters on our website at [www.transcanada.com](http://www.transcanada.com).

The audit and the human resources committees hold simultaneous meetings, as do the governance and health, safety and environment committees, so each committee has sufficient time to focus on its responsibilities. As a result, Mr. Jackson, the independent non-executive chair of the board, is a voting member of the governance committee and the human resources committee, and is not a member of the audit committee or the health, safety and environment committee.

The committees will be reconstituted after the annual and special meeting.

Each meeting has time set aside for members to discuss the committee operations and responsibilities without management present.

For more information on the four standing committees, see board committees on page 51 of the Management Information Circular available online at [www.transcanada.com](http://www.transcanada.com) and on SEDAR at [www.sedar.com](http://www.sedar.com).

## HEALTH, SAFETY AND ENVIRONMENT COMMITTEE

The health, safety and environment committee is responsible for oversight for health, safety, security and environmental matters (HSE matters).

The committee reviews and monitors:

- the performance and activities of TransCanada on HSE matters including compliance with applicable and proposed

legislation, regulations and orders; conformance with industry standards and best practices; people, health, safety and security; process safety, asset reliability; operational risk management and asset integrity plans and programs; and emergency response plans and programs

- the systems, programs and policies relating to HSE matters and whether they are being appropriately developed and effectively implemented
- actions and initiatives undertaken by TransCanada to prevent, mitigate and manage risks related to HSE matters which may have the potential to adversely impact our operations, activities, plans, strategies or reputation; or prevent loss or injury to our employees and assets or operations from malicious acts, natural disasters or other crisis situations
- any critical incidents respecting our assets or operations involving: the fatality of or a life threatening injury to a person; any pipeline ruptures resulting in significant property damage or loss of product; any whistleblower events relating to HSE matters; or any incidents involving personnel and public safety, property damage, environmental damage or physical security that have the potential to severely and adversely impact our reputation and or business continuity
- significant regulatory audits, findings, orders, reports and/or recommendations issued by or to TransCanada related to HSE matters or issues, together with management's response thereto

The committee reviews reports and, when appropriate, makes recommendations to the board on TransCanada's policies and procedures related to health, safety, security and the environment. This committee meets separately with officers of TransCanada and its business units who have responsibility for these matters and reports to the board on such meetings.

The health, safety and environment committee meets separately with the executive vice-president, operations and engineering at the end of each meeting. The committee also meets in-camera at the beginning of each meeting as necessary, and at the end of each meeting.

More information on the health, safety and environment committee is available on page 54 of the Management Information Circular available online at [www.transcanada.com](http://www.transcanada.com) and on SEDAR at [www.sedar.com](http://www.sedar.com).

### HSE Risk Management

Our management system for HSE is modelled after international standards, conforms to external industry consensus standards and voluntary programs, and complies with applicable legislative and regulatory requirements and various other internal management systems. It follows a continuous improvement cycle organized into four key areas:

- Planning: risk and regulatory assessment, objectives and targets, and structure and responsibility
- Implementing: development and implementation of programs, plans, procedures and practices aimed at operational risk management

- Reporting: document and records management, communication and reporting
- Action: ongoing audit and review of HSE performance

The health, safety and environment committee reviews HSE performance and operational risk management. It receives detailed reports on:

- overall HSE corporate governance
- operational performance and preventive maintenance metrics
- asset integrity programs
- emergency preparedness, incident response and evaluation
- people and process safety performance metrics
- developments in and compliance with applicable legislation and regulations

The committee also receives updates on any specific areas of operational and construction risk management review being conducted by management and the results and corrective action plans flowing from internal and third-party audits.

Generally, each year the committee or the committee chair tours one of our existing assets or projects under development as part of its responsibility to monitor and review our HSE practices. The board may be invited to join the committee at its site visit and the board typically has a separate site visit each year. In 2015, all of the board members participated in a special session devoted to operational risk management.

For more information, see Management Systems on page 10 and Risk Oversight on page 82.

## COMPENSATION

TransCanada's compensation programs are designed to 'pay for performance' by rewarding employees, including our executives, for delivering results that meet or exceed our corporate objectives and support our overall strategy.

In order to attract, engage and retain high-performing employees, we review our programs each year to ensure we offer compensation that is market competitive. Our target compensation levels are determined with reference to median levels in our peer group. Actual performance that exceeds expectations can result in compensation above market median levels.

Our compensation programs are intended to align the executives' interests with those of our shareholders and customers. The human resources committee and the board place a significant emphasis on variable compensation, particularly long-term incentives, when determining the total direct compensation for our executives. Both our executive share unit and stock option plans encourage value creation over the long term.

We are committed to high standards of corporate governance, including compensation governance.

### COMPENSATION GOVERNANCE

The board, the human resources committee and the governance committee are responsible for the integrity of our compensation governance practices.

## COMPENSATION BEST PRACTICES



Our compensation best practices include:

- benchmarking director and executive compensation against size appropriate peer groups to assess competitiveness and fairness
- limits on variable compensation payments
- share ownership requirements for our directors and executives
- incentive compensation reimbursement ('clawback') policy and anti-hedging policy
- annual say on pay vote by shareholders, averaging 94 per cent approval for the last three years

The board approves all matters related to executive and director compensation. The committees are responsible for reviewing compensation matters and making any recommendations. Both committees are entirely independent. Each human resources committee member is independent under the NYSE compensation committee independence requirements.

### EXPERTISE

#### Human Resources and Executive Compensation

The human resources committee is responsible for executive compensation. It consists of five independent directors who have an appropriate mix of skills and experience in management, business, industry, human resources, executive compensation and public accountability for carrying out their responsibilities.

All of the members have experience as members of human resources or compensation committees of other public companies. All of the members also have governance experience and most have finance and accounting experience.

In addition to the committee's collective experience in compensation matters, all of the members stay actively informed of trends and developments in compensation matters and the applicable legal and regulatory frameworks.

More information is available on page 57 of the Management Information Circular available online at [www.transcanada.com](http://www.transcanada.com) and on SEDAR at [www.sedar.com](http://www.sedar.com).

### Governance

Specific details about each director's background and experience is available in the director profiles starting on page 18, and more information about the committees is available starting on page 51 of the Management Information Circular.

The governance committee is responsible for director compensation and risk oversight. It consists of five independent directors who have a mix of skills and experience in business, risk, governance, human resources and compensation. Four of the members are currently or have been members of human resources or compensation committees of other public companies. Four of the members also have experience as a CEO of one or more public companies, which has provided each of them with experience in oversight of and direct involvement in compensation matters.

### COMPENSATION OVERSIGHT

The purpose of the board's compensation oversight is to ensure that executives and directors are compensated fairly with respect to market in a way that does not lead to undue risk in TransCanada's business and operations.

The board reviews our compensation policies and practices every year, considers the possibility of risks, and makes any adjustments it deems necessary to ensure that our compensation policies are not reasonably likely to have a material adverse effect on TransCanada. It carries out this work directly or through the human resources committee and the governance committee.

The board has approved various compensation policies and practices to effectively identify and mitigate compensation risks and discourage members of the executive leadership team or others from taking inappropriate or excessive risks.

### Multi-Year Strategic Plan

We have a multi-year strategic plan that identifies our core strategies to achieve our vision of being the leading energy infrastructure company in North America. Our core strategies include:

- maximizing the full-life value of our infrastructure assets and commercial positions
- commercially developing and building new asset investment programs
- cultivating a focused portfolio of high-quality development options
- maximizing our competitive strengths

Executive compensation is closely linked to the strategic plan. Our annual corporate objectives support the strategic plan and are integrated in our compensation decision-making process. At the end of each year, the board assesses our performance against the corporate objectives to determine the corporate factor that is used in calculating short-term incentive awards for the executive leadership team and all other employees. The board also ensures that the annual individual performance objectives for each member of the executive leadership team align with our corporate objectives and reflect performance areas that are specific to each role when it determines total direct compensation for each executive.

### Compensation Philosophy

Our compensation philosophy guides all compensation program design and decisions. Our approach to compensation is structured to meet four key objectives: pay for performance, be market competitive, align executives' interests with those of our shareholders and customers, and attract, engage and retain our executives. In setting compensation levels, each component – base salary, short-term and long-term incentives – as well as total direct compensation are determined with reference to median levels in our peer group (see pages 79 through 91 of the Management Information Circular for details).

Executive compensation is also designed to pay for performance as a significant portion of total direct compensation is variable or at-risk compensation. See pages 97 through 101 of the Management Information Circular for the pay mix for each named executive.

### Executive Compensation Structured to Manage Risk

The human resources committee and the board have structured the executive compensation program to ensure that executives are compensated fairly and in a way that does not present undue risk to TransCanada or encourage executives to take inappropriate risks.

- Structured process: The committee has implemented a formal decision-making process that involves management, the committee and the board. The committee uses a multi-step review process for all compensation matters, first adopting goals and metrics of performance, reviewing how performance compares to the pre-established metrics and then seeking board input as to the reasonableness of the results.

- Benchmarking to ensure fairness: Executive compensation is reviewed every year. Director compensation is reviewed every two years by the governance committee and the board. Both director and executive compensation are benchmarked against size appropriate peer groups to assess competitiveness and fairness, and the appropriateness of the composition of the applicable peer groups is reviewed.
- Modelling and stress testing: The committee uses modelling to stress test different compensation scenarios and potential future executive compensation. This includes an analysis of the potential effect of different corporate performance scenarios on previously awarded and outstanding compensation to assess whether the results are reasonable. The committee also uses modelling to assess the payments under the terms of the executives' employment agreements for severance and change of control situations.
- Independent advice: The committee uses an independent external compensation consultant to provide advice in connection with executive pay benchmarking, incentive plan design, compensation governance and pay for performance.
- Alignment with shareholders: The committee and the board place a significant emphasis on long-term incentives when determining the total direct compensation for the executive leadership team. Our long-term incentives include stock options and performance vesting executive share units (ESUs) – both of which encourage value creation over the long term and align executives' interests with our shareholders.

- Pre-established objectives: Each year the board approves corporate, business/functional and individual objectives that are aligned with the overall business plan for each member of the executive leadership team. These objectives are used to assess performance and determine compensation.
- Multi-year performance-based compensation: Awards under the ESU plan are paid out based on our performance against objectives set for the three-year vesting period.
- Limits on variable compensation payments: Short-term incentive awards are subject to a maximum payout of two times target. Long-term incentive awards under the ESU plan are limited to a maximum payout of 1.5 times the final number of units accrued at the end of the vesting period (2.0 times starting with the 2015 grant).
- Discretion: The board completes a formal assessment annually, and can then use its discretion to increase or decrease any compensation awards if it deems it appropriate based on market factors or other extenuating circumstances. However, to maintain the integrity of the metrics-based framework, the board exercises its discretion sparingly.
- Corporate objectives: We adopt corporate objectives consistent with our approved financial plan so that the board can monitor how compensation influences business decisions.
- Recommended amendments: We recommended amendments to the stock option plan, including an increase to the number of shares reserved for issuance to allow for option grants over the next three years, for shareholder approval.
- Share ownership requirements: We have share ownership requirements for both directors and executives, reflecting the board's view that directors and executives can represent the interests of shareholders more effectively if they have a significant investment in TransCanada.
- Prohibition on hedging: Our trading policy includes an anti-hedging policy preventing directors and officers from using derivatives or other instruments to insulate them from movements in our share price. This includes prepaid variable forward contracts, equity swaps, collars and units of exchange funds.
- Reimbursement: If there is an incidence of misconduct with our financial reporting and we must restate our financial statements because of material non-compliance with a financial reporting requirement, our CEO and CFO are required by law to reimburse TransCanada for incentive-based compensation related to the period the misconduct occurred. They must also reimburse us for any profits they realized from trading TransCanada securities during the 12 months following the issue of the misstated financial statements.
- We also have an incentive compensation reimbursement policy which requires employees at the vice-president level and above to repay vested and unvested short- and long-term incentive compensation (including proceeds realized from the exercise of stock options) granted in the three-year period preceding a restatement of financial results or a material error in financial reporting if the restatement or error resulted from the employee's intentional misconduct. We will amend the policy as necessary to conform with any applicable laws, such as the final Dodd-Frank rules.
- Say on pay: We implemented a non-binding advisory shareholder vote on our approach to executive compensation starting in 2010. The results shown in the table below confirm that a significant majority of shareholders have accepted our approach to executive compensation. The approval vote as a percentage of shares voted in favour of our approach to executive compensation for the last three years are as follows:

Year	Approval vote (%)
2015	97.34
2014	94.28
2013	92.67

### Policies and Guidelines to Manage Risk

The governance committee, the human resources committee and the board have instituted several policies to ensure that compensation risk is appropriately managed and that the interests of both directors and executives are aligned with those of our shareholders. These policies are derived from best practices in governance and legal requirements.

- Code of business ethics: Our code of business ethics applies to employees, contract workers, independent consultants and directors. The code incorporates principles of good conduct and ethical and responsible behaviour to guide our decisions and actions and the way we conduct business.

After considering the implications associated with our compensation policies and practices and completing a review of our policies and practices described above, the board believes that:

- we have the proper practices in place to effectively identify and mitigate potential risk
- TransCanada's compensation policies and practices do not encourage any member of our executive leadership team, or any employee, to take inappropriate or excessive risks, and are not reasonably likely to have a material adverse effect on our company

In addition to our compensation policies and practices, our corporate values – Integrity, Collaboration, Responsibility and Innovation – also guide director, officer and employee behaviour, underpin our company culture and define the character of the organization we share and work in every day.

## INDEPENDENT CONSULTANT

The human resources committee retains an independent compensation consultant to provide advice on compensation-related matters.

The committee created a mandate for the consultant that includes:

- advising on compensation levels for the CEO and named executives
- assessing the CEO's recommendations on the compensation of the other named executives
- attending all of its committee meetings (unless otherwise requested by the committee chair)
- providing data, analysis or opinion on compensation-related matters requested by the committee or its chair

- reporting to the committee on any matters that may arise related to executive compensation

Effective July 1, 2013, the NYSE adopted new listing standards requiring issuers to consider certain enumerated factors that are relevant to an advisor's independence from management. Before engaging an external consultant, the committee considers all factors bearing on the consultant's independence, including those factors enumerated by the NYSE.

Meridian Compensation Partners (Meridian) has been the independent compensation consultant since September 2014. The committee obtains independent advice from the consultant, who provides a neutral source of data and information on compensation practices and trends. While the consultant's advice is an important tool in the committee's processes, the committee remains wholly responsible for making its own decisions and recommendations to the board.

While Meridian provides advice to the committee, it does not provide consulting or other services to TransCanada. Before engaging Meridian, and after considering all factors bearing on the consultant's independence, including those factors enumerated by the NYSE, the committee determined that Meridian is independent. Meridian is not permitted to provide services to management.

More information on the executive compensation-related fees is available on page 61 of the Management Information Circular available online at [www.transcanada.com](http://www.transcanada.com) and on SEDAR at [www.sedar.com](http://www.sedar.com).

## EXECUTIVE AND DIRECTOR COMPENSATION

Detailed executive and director compensation information is available in the Management Information Circular available online at [www.transcanada.com](http://www.transcanada.com) and on SEDAR at [www.sedar.com](http://www.sedar.com).

## ETHICS

At TransCanada, we are committed to meeting our obligations ethically and under all applicable laws and regulations.

## COMPLIANCE

As a regulated company, TransCanada is subject to many regulatory requirements, including those of the National Energy Board, the Federal Energy Regulatory Commission and the North American Energy Reliability Corporation, among others.

In addition, TransCanada's regulated pipelines are subject to tariffs that we must comply with. To the extent that the requirements of more than one jurisdiction apply, we use the highest of the various standards.

TransCanada also complies with all laws and regulations related to the protection of health, safety and the environment, employment, political contributions and government lobbying, financial reporting and fraud prevention, among others.

## CODE OF BUSINESS ETHICS

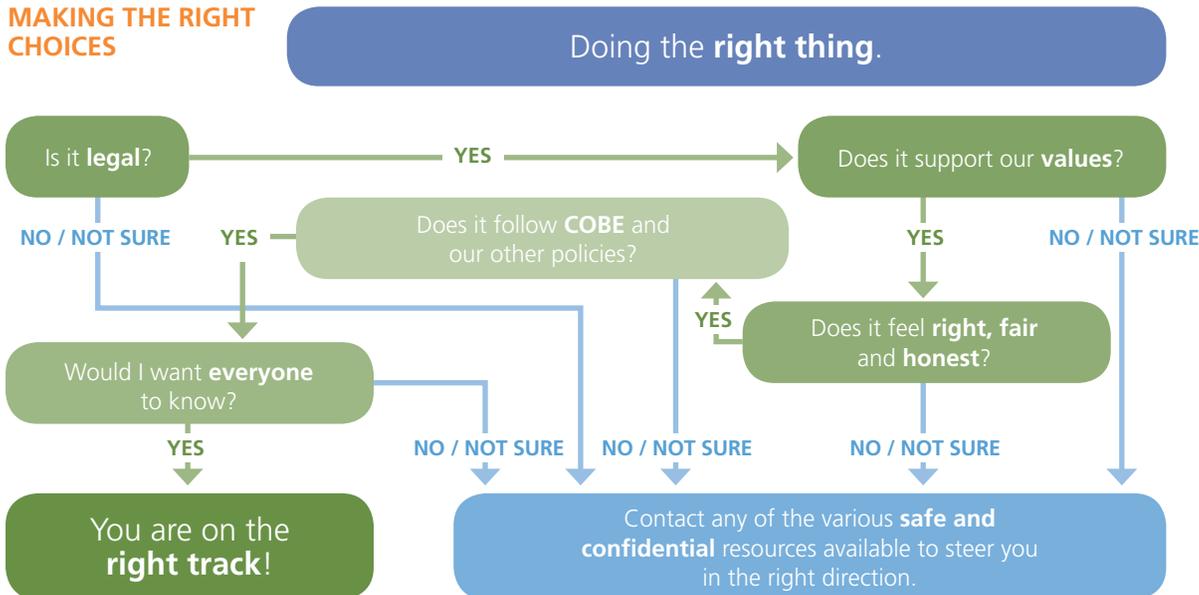
At TransCanada, our Code of Business Ethics (COBE) helps us put our values into practice in all of our daily decisions and activities. The COBE provides personnel with the expected standards of conduct to ensure that TransCanada's reputation for honesty, integrity and reliability is maintained. TransCanada prides itself on being a company that all our stakeholders can count on to make the right choices and do the right thing.

COBE applies to all employees, officers and directors as well as contract workers of TransCanada and its wholly owned subsidiaries and operated entities in countries where we conduct business. All employees (including executive officers) and directors must certify their compliance with COBE every year.

Any unusual behaviour or suspected violations of COBE must be reported immediately. Employees can report a concern to their supervisor, corporate compliance, internal audit, their compliance

co-ordinator, or to our ethics help-line. The help-line allows anyone – employees, contractors, consultants, other stakeholders and the general public – to report a concern, confidentially and anonymously, about any perceived accounting irregularities, legal or ethical violations or other suspected breaches of the code. The telephone number is published on our website and employee intranet, in other employee communications and in our Annual Report. Our policy strictly prohibits reprisals or retaliation against anyone who files an ethics concern or complaint in good faith.

## MAKING THE RIGHT CHOICES



Even if we try our best to make the right choices and do the right thing, there are times when the right thing isn't completely clear. It's at those times that we need to ask ourselves some fundamental questions. The above guide to making the right choices and doing the right thing is intended to help employees identify the right path in those situations.

At TransCanada, we recognize that reporting a concern can be a very stressful situation. We ensure that concerns are heard, and given the attention they deserve.

Photo at right: On all our projects, such as the Coastal GasLink pipeline project, we ensure that our employees and contractors maintain the highest standards of ethical conduct in their daily decisions and activities.



In 2015, we engaged more than 1,579 suppliers and awarded \$5.1 billion in business to our suppliers.

# ETHICAL BUSINESS CONDUCT

Internal audit handles most investigations, including any concerns about directors and senior management. Human resources professionals handle any concerns relating to human resource matters such as harassment. The audit committee monitors compliance with COBE and reports any significant violations to the board. The committee follows formal procedures for receiving and reviewing complaints, determining a course of action and retaining the information on file. It also oversees the operation of the ethics help-line as part of its responsibilities.

Any waiver of COBE for our executives and directors must be approved by the Board of Directors, or the appropriate committee. There were no material departures from the code in 2015.

Our Code of Business Ethics is posted on our website at [www.transcanada.com](http://www.transcanada.com).

## **INTER-AFFILIATE INTERACTIONS**

As a transmission provider, TransCanada is subject to Codes of Conduct in Canada and the Standards of Conduct in the U.S. These Codes and Standards of Conduct are intended to ensure that our non-regulated affiliates do not receive an unfair advantage over other customers, whether as a result of discriminatory treatment or the sharing of information, personnel or resources. The Canadian Codes also prohibit the cross-subsidization of our non-regulated affiliates at the expense of our transmission customers.

## **TRAINING**

Each new employee receives compulsory training in the COBE and every employee must reaffirm annually to the chief compliance officer that their behaviour has been, and will continue to be, consistent with the code's elements. While contractors are not required to complete training or to certify, they are bound by all applicable laws, regulations and corporate policies, including the COBE. We also have mandatory company-wide training on inter-affiliate interactions and avoiding bribery and corruption.

## **AVOIDING BRIBERY AND CORRUPTION**

TransCanada has developed an avoiding bribery and corruption policy to provide TransCanada personnel with the required tools for making business decisions and actions that comply with applicable laws and regulations. Guidance is provided in the policy for dealings with agents, mergers, acquisitions, joint ventures and partnerships, gifts, meals and entertainment provided to government officials, community investment, political donations, and government lobbying as well as guidance for ensuring TransCanada's books and records are complete and accurate.

Each employee receives annual mandatory training on avoiding bribery and corruption and must reaffirm annually to the chief compliance officer that their behaviour has been, and will continue to be, consistent with the avoiding bribery and corruption policy. While contractors are not required to complete training or to certify, they are bound by all applicable laws, regulations and corporate policies. In-person avoiding bribery and corruption training is also provided to individuals working in high-risk areas.

TransCanada also conducts due diligence with respect to bribery and corruption for all third parties who propose to do business on TransCanada's behalf.

We take every report seriously, investigate each report to identify facts, and make improvements to our practices and procedures when warranted.

## **GOVERNANCE DOCUMENTS**

TransCanada has implemented various corporate governance documents to provide guidance to personnel on their conduct when doing business on behalf of TransCanada. Governance documents include, but are not limited to: guiding principles, corporate policies, corporate programs and corporate standards. The corporate policy and practices committee makes key decisions involving the creation, review and management of corporate governance documents for TransCanada.

## **COMPLIANCE STRUCTURE**

The audit committee of the Board of Directors is the governing body that has ultimate oversight of TransCanada's ethics and compliance program. TransCanada's chief compliance officer leads the program, chairs the executive-level compliance committee and reports to the audit committee of the Board of Directors on ethics and compliance-related matters.

TransCanada has more than 60 compliance co-ordinators throughout the organization who are subject-matter experts for their compliance areas. The compliance co-ordinators work together with the corporate compliance department and internal audit to facilitate the compliance program and work to ensure the effective

management of compliance issues and risks, provide training, guidance and support to employees, promote a culture of ethics and provide support to TransCanada's personnel to make the right choices and do the right thing.

## INTERNAL AUDIT

Internal audit manages the ethics help-line and conducts any ethics and compliance-related investigations and audits. Internal audit also works closely with the corporate compliance department, the harassment investigation co-ordinator and the privacy officer to ensure legal and ethical violations are managed appropriately.

## REPORTING

TransCanada provides personnel with various resources for reporting actual or suspected violations or to seek guidance. These resources are leaders, human resources consultants, compliance co-ordinators, corporate compliance department, internal audit and the law department. Should anyone be uncomfortable speaking to any of these resources, or prefer to remain anonymous, the ethics help-line is another resource for reporting or seeking guidance. The ethics help-line is operated by an independent third-party service provider. All calls to the ethics help-line are free of charge, and can be made in English, French or Spanish 24 hours a day, seven days a week, 365 days a year.

All ethical issues received are investigated. To make a report by telephone, call 1.888.920.2042 in Canada and the U.S., or call 001.800.840.7907 in Mexico, or visit the Ethics section of [www.transcanada.com](http://www.transcanada.com).

## NUMBER OF ETHICAL ISSUES RECEIVED

Year	Received
2011	52
2012	57
2013	49
2014	55
2015	65

## COMPLIANCE INVESTIGATIONS AND REPORTS

Regardless of the means used to report, each report is taken seriously and is investigated and addressed as appropriate, in accordance with TransCanada's procedure for the investigation, management and reporting of instances of non-compliance. Harassment issues are investigated by the harassment investigation co-ordinator in accordance with the harassment free workplace policy.

## NON-RETALIATION POLICY

We support and encourage reporting of suspected incidents of non-compliance with applicable laws, regulations, and authorizations, as well as hazards, potential hazards, near hits and incidents involving health and safety or the environment. We take every report seriously, investigate each report to identify facts, and effect improvements to our practices and procedures when warranted. All personnel making reports in good faith will be protected. Good-faith reporting is intended to remove protection for personnel making intentionally false or malicious reports, or who seek to exempt their own negligence or wilful misconduct by the act of making a report. We ensure immunity

from disciplinary action or retaliation for personnel for the good-faith reporting of such concerns.

In 2015, we reviewed the COBE and other policies and made a number of enhancements to bring greater clarity around reporting and confirming immunity from disciplinary action or retaliation for the good-faith reporting of those concerns.

## ANTI-CORRUPTION AND COMPLIANCE AFFILIATIONS

TransCanada and other employers participate in organizations that provide training and promote the advancement of ethical conduct in organizations. These organizations include the Compliance & Ethics Leadership Council of the Corporate Executive Board, the Society of Corporate Compliance & Ethics, the Conference Board of Canada Corporate Ethics Management Council, the Institute of Internal Auditors, the Association of Certified Fraud Examiners and the Information Systems Audit and Control Association.

We encourage employees to feel comfortable reporting any actual or suspected breaches and retain an independent company to log and track incidents. Each issue is retired only upon resolution. We ensure immunity for the good-faith reporting of such concerns.

## OVERSIGHT AND POLICIES ON LOBBYING, POLITICAL CONTRIBUTIONS AND CORPORATE MEMBERSHIPS

The governance committee of the Board of Directors has oversight of lobbying, political contributions and corporate memberships. They receive a report annually that provides information on our lobbying activities, a complete list of our political contributions, and a detailed list of our corporate memberships, including industry associations and policy organizations.

TransCanada prides itself on being a company that all our stakeholders can count on to make the right choices and do the right thing. TransCanada has several policies pertaining to lobbying activities and political contributions, each of which applies to all directors, officers and employees as well as contractors, as summarized in the following:

### Avoiding Bribery and Corruption Policy

TransCanada prohibits the payment of bribes and kickbacks, or provision to government officials of gifts, entertainment or something of value, in order to improperly influence such government official's decisions or actions in the performance of their duties. TransCanada also prohibits the offer or provision of facilitation payments.

The company's personnel and agents are prohibited from offering, paying, promising or authorizing a compensation, payment or benefit to government officials. This policy outlines TransCanada's expectations of personnel regarding integrity-based

business practices to avoid the occurrence, or even the appearance, of improper or illegal conduct, and to encourage ethical behaviour in all of TransCanada's business.

### Code of Business Ethics

TransCanada's COBE provides personnel with the expected standards of conduct to ensure TransCanada's reputation for honesty, integrity and reliability is maintained. COBE states that we respect the political process and only make political contributions and engage in lobbying activities that are legal and transparent. COBE refers our personnel to the Avoiding Bribery and Corruption Policy and Political Contributions Policy for more specific guidance on those issues.

### Government Relations Policy

This policy sets out the role of our government relations department and provides guidance to TransCanada's personnel to ensure ethical behaviour when dealing with government officials. It also outlines expectations around lobbying compliance for both in-house and consultant lobbyists.

### Political Contributions Policy

This policy outlines the criteria for TransCanada's contributions to political organizations and candidates for public office. TransCanada does not contribute to political parties or associations, or to any individual who holds or is candidate for public office, except when permitted by applicable law and in accordance with all company policies.

TransCanada makes political contributions in a legal, responsible and ethical manner that aligns with the best interests of the company and its stakeholders. Our political contributions are generally made in regions where TransCanada conducts business. In the U.S.:

- all non-U.S. personnel are strictly prohibited from having any role, direct or indirect, in making political contributions
- no corporate funds may be used to make political contributions to candidates and political committees in federal elections
- only funds generated from U.S. operations may be used to make political contributions

### LOBBYING

TransCanada's business can be significantly impacted by government actions and decisions. The company works continuously to build and maintain positive and constructive relationships with government officials at all levels. This allows TransCanada to gain trust and respect in the public sector, obtain government support for its activities and initiatives, and to contribute to and collaborate with the communities in which the company operates.

TransCanada maintains registrations for in-house lobbyists where required by law. Our lobbying activities are registered in various jurisdictions in Canada and the U.S., many of which provide public disclosure with details of registrations. Links to each of the lobbyist registrations, where available, can be found on our website at [www.transcanada.com](http://www.transcanada.com).

In addition, our consultant lobbyists in all jurisdictions are expected to comply with all applicable laws.

## POLITICAL CONTRIBUTIONS

TransCanada is committed to the responsible development of public policy. The company engages in the public policy process by participating in direct advocacy of governments, as well as working with third parties, such as industry associations. As part of this commitment, the company focuses on constructive engagement and support of the political process through contributions to political organizations and political campaigns to the extent permitted by applicable law.

TransCanada makes donations in the U.S. and Canada in accordance with our Political Contributions Policy. Political donations made in Canada during 2015 focused on providing support where TransCanada has key assets and where party policy supports our private investment in energy infrastructure.

In 2015, TransCanada spent approximately \$155,000 on political contributions, with \$86,000 in Canada and \$69,000 in the U.S.

TransCanada USA Services Inc., a U.S. subsidiary of TransCanada Corporation, has also established the TransCanada USA Services Inc. Political Action Committee, to make political contributions in connection with federal, state and local elections in the U.S. using funds voluntarily donated by

employees of TransCanada USA Services Inc. and affiliated entities. The TransCanada USA Services Inc. Political Action Committee is administered in compliance with the restrictions and requirements of the Federal Election Campaign Act of 1971, as amended (FECA), and the rules and regulations of the Federal Election Commission, which administers FECA. From January 1, 2015 to March 31, 2016, a total of \$8,500 was disbursed by the TransCanada USA Services Inc. Political Action Committee. More information on contributions made by the TransCanada USA Services Inc. Political Action Committee can be found at [www.fec.gov](http://www.fec.gov).

## CORPORATE MEMBERSHIPS

TransCanada is a member of many varied trade associations and policy organizations across our lines of business. Our primary purpose for involvement in trade associations is for general business reasons, and discussion of technical and industry standards. Trade associations also provide opportunities for our employees to engage in professional development and networking. While trade associations and policy organizations may use membership fees for lobbying purposes, TransCanada does not direct how membership fees are used, and payment of membership fees does not necessarily reflect significant involvement with the trade association or policy organization from a policy perspective. Our participation in a specific trade association or policy organization does not signify comprehensive support for all positions undertaken by the associations.

TransCanada's approval process for membership in these organizations requires obtaining vice-president-level support. Approval of memberships involves consideration of the following:

- the objectives of the association
- the association's affiliations
- the benefits provided to TransCanada
- the cost of the membership
- whether the membership aligns with TransCanada's strategic focus
- whether there are other alternatives to membership that would provide the same benefits

The government and industry relations department is responsible for payments and maintains a roster of memberships. This process has been established to ensure TransCanada receives value from its memberships.

In addition, the governance committee of the Board of Directors receives a report annually on our memberships in trade association and policy organizations, including a detailed discussion of our key memberships and their value to TransCanada.

## List of Memberships

The most significant corporate memberships that TransCanada maintains from a policy perspective are the following:

- American Petroleum Institute
- Association of Oil Pipe Lines
- Interstate Natural Gas Association of America
- Canadian Energy Pipeline Association

The following is a list of industry associations and policy organizations to which we made payments of more than \$50,000 during 2015. We have also included industry associations and policy organizations in which we play a significant role in contributing to their policy stance, even if payments did not exceed \$50,000.

- American Gas Association
- American Petroleum Institute
- Asociacion Mexicana de Gas Natural
- Association of Power Producers of Ontario
- Association of Oil Pipe Lines
- Business Roundtable
- Canadian Council of Chief Executives
- Canadian Electricity Association
- Canadian Energy Pipeline Association
- Canadian Gas Association
- Canadian Association of Petroleum Producers
- Canadian Manufacturers and Exporters
- Corporate Executive Board
- Electric Power Research Institute
- Independent Power Producers of New York Inc.
- Interstate Natural Gas Association of America
- National Association of Manufacturers
- Northwest Gas Association
- Ontario Energy Association
- Republican Governors Association
- United States Chamber of Commerce
- World 50 Inc.

## LOOKING AHEAD

Please visit [csrreport.transcanada.com](http://csrreport.transcanada.com) to learn more about our corporate social responsibility practices or visit [www.transcanada.com](http://www.transcanada.com) for more details about our business.

### SAFETY

Strive diligently toward our goal of zero incidents through our pipeline integrity and public awareness programs, while continuing to ensure we're all prepared in the unlikely event of a safety incident.

### ENVIRONMENT

Continue to build on the data we publicly disclose, and maintain our commitment to environmental stewardship, protection and performance.

### SOCIETY

Through diligent engagement, build your trust in our ability to balance safety, profitability and social and environmental responsibility.

### ECONOMY

Advance \$45 billion of commercially secured longer term projects that provide jobs and tax benefits to our communities, whose governments use that income for things like schools, roads and hospitals.

## FORWARD-LOOKING INFORMATION

We disclose forward-looking information to help current and potential stakeholders understand management's assessment of our future plans and financial outlook, and our future prospects overall.

Statements that are forward-looking are based on certain assumptions and on what we know and expect today, and generally include words like anticipate, expect, believe, may, will, should, estimate or other similar words.

Forward-looking statements in this report may include information about the following, among other things:

- anticipated business prospects, including the expected closing and financing of the Columbia Pipeline Group, Inc. (Columbia) acquisition
- planned changes in our business, including the divestiture of certain assets
- our financial and operational performance, including the performance of our subsidiaries
- expectations or projections about strategies and goals for growth and expansion
- expected cash flows and future financing options available to us
- expected costs for planned projects, including projects under construction and in development
- expected schedules for planned projects (including anticipated construction and completion dates)
- expected regulatory processes and outcomes
- expected impact of regulatory outcomes
- expected outcomes with respect to legal proceedings, including arbitration and insurance claims
- expected capital expenditures and contractual obligations
- expected operating and financial results
- expected impact of future accounting changes, commitments and contingent liabilities
- expected industry, market and economic conditions.

Forward-looking statements do not guarantee future performance. Actual events and results could be significantly different because of assumptions, risks or uncertainties related to our business or events that happen after the date of this report.

Our forward-looking information is based on key assumptions, and subject to the following risks and uncertainties:

### ASSUMPTIONS

- timing and completion of the Columbia acquisition, including receipt of regulatory and Columbia stockholder approval
- planned monetization of our U.S. Northeast power assets and a minority interest in our Mexican natural gas pipeline business
- inflation rates, commodity prices and capacity prices
- timing of financing and hedging
- regulatory decisions and outcomes
- termination of the Alberta Power Purchase Arrangements (PPAs)
- foreign exchange rates
- interest rates
- tax rates
- planned and unplanned outages and the use of our pipeline and energy assets
- integrity and reliability of our assets
- access to capital markets
- anticipated construction costs, schedules and completion dates
- acquisitions and divestitures.

### RISKS AND UNCERTAINTIES

- length of time to complete the acquisition of Columbia
- our ability to realize the anticipated benefits of the acquisition of Columbia
- timing and execution of our planned asset sales
- our ability to successfully implement our strategic initiatives
- whether our strategic initiatives will yield the expected benefits
- the operating performance of our pipeline and energy assets
- amount of capacity sold and rates achieved in our pipeline businesses
- the availability and price of energy commodities
- the amount of capacity payments and revenues we receive from our energy business

- regulatory decisions and outcomes
- outcomes of legal proceedings, including arbitration and insurance claims
- performance and credit risk of our counterparties
- changes in the political environment
- changes in environmental and other laws and regulations
- competitive factors in the pipeline and energy sectors
- construction and completion of capital projects
- costs for labour, equipment and material
- access to capital markets
- interest, tax and foreign exchange rates
- weather
- cybersecurity
- technological developments
- economic conditions in North America as well as globally.

You can read more about these factors and others in reports we have filed with Canadian securities regulators and the U.S. Securities and Exchange Commission (SEC).

As actual results could vary significantly from the forward-looking information, you should not put undue reliance on forward-looking information and should not use future-oriented information or financial outlooks for anything other than their intended purpose. We do not update our forward-looking statements due to new information or future events, unless we are required to by law.

### NON-GAAP MEASURES

We use the following non-GAAP measures:

- funds generated from operations
- comparable earnings before interest, taxes, depreciation and amortization

These measures do not have any standardized meaning as prescribed by U.S. generally accepted accounting principles (GAAP) and, therefore, may not be similar to measures presented by other entities. For more information on reconciliations of non-GAAP measures to the most closely related GAAP measures, refer to TransCanada's 2015 Annual Report filed with Canadian securities regulators and the SEC and available at [www.transcanada.com](http://www.transcanada.com).

# TRANSCANADA TODAY

As at April 15, 2016

## Natural Gas Pipelines

### Canadian Pipelines

1	NGTL System	—
2	Canadian Mainline	—
3	Foothills	—
4	Trans Québec & Maritimes (TQM)	—

### U.S. Pipelines

5	ANR Pipeline	—
5a	ANR Regulated Natural Gas Storage	▲
6	Bison	—
7	Gas Transmission Northwest (GTN)	—
8	Great Lakes	—
9	Iroquois	—
10	North Baja	—
11	Northern Border	—
12	Portland	—
13	Tuscarora	—

### Mexican Pipelines

14	Guadalajara	—
15	Tamazunchale	—

### Under Construction

16	Mazatlan Pipeline	----
17	Topolobampo Pipeline	----
18	Tuxpan-Tula Pipeline	----

### In Development

19	Coastal GasLink	.....
20	Prince Rupert Gas Transmission	.....
21	North Montney Mainline	.....
22	Merrick Mainline	.....
23	Eastern Mainline	.....
24	Tula-Villa de Reyes	.....

<sup>1</sup> Located in Arizona, results reported in Canadian – Western Power

<sup>2</sup> Acquired February 1, 2016

## Liquids Pipelines

### Canadian / U.S. Pipelines

25	Keystone Pipeline System	—
26	Cushing Marketlink and Terminal	■

### Under Construction

27	Houston Lateral	----
28	Houston Terminal	■
29	Grand Rapids Pipeline	----
30	Northern Courier Pipeline	----

### In Development

31	Bakken Marketlink	■
32	Keystone Hardisty Terminal	■
33	Keystone XL	.....
34	Heartland Pipeline	.....
35	TC Terminals	■
36	Energy East Pipeline	.....
37	Upland Pipeline	.....

## Energy

### Canadian - Western Power

38	Bear Creek	⚡
39	Carseland	⚡
40	Coolidge <sup>1</sup>	⚡
41	Mackay River	⚡
42	Redwater	⚡

### Canadian - Eastern Power

43	Bécancour	⚡
44	Cartier Wind	⬆️
45	Grandview	⚡
46	Halton Hills	⚡
47	Portlands Energy	⚡
48	Ontario Solar (8 Facilities)	☀️

### Bruce Power

49	Bruce	⚡
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### U.S. Power

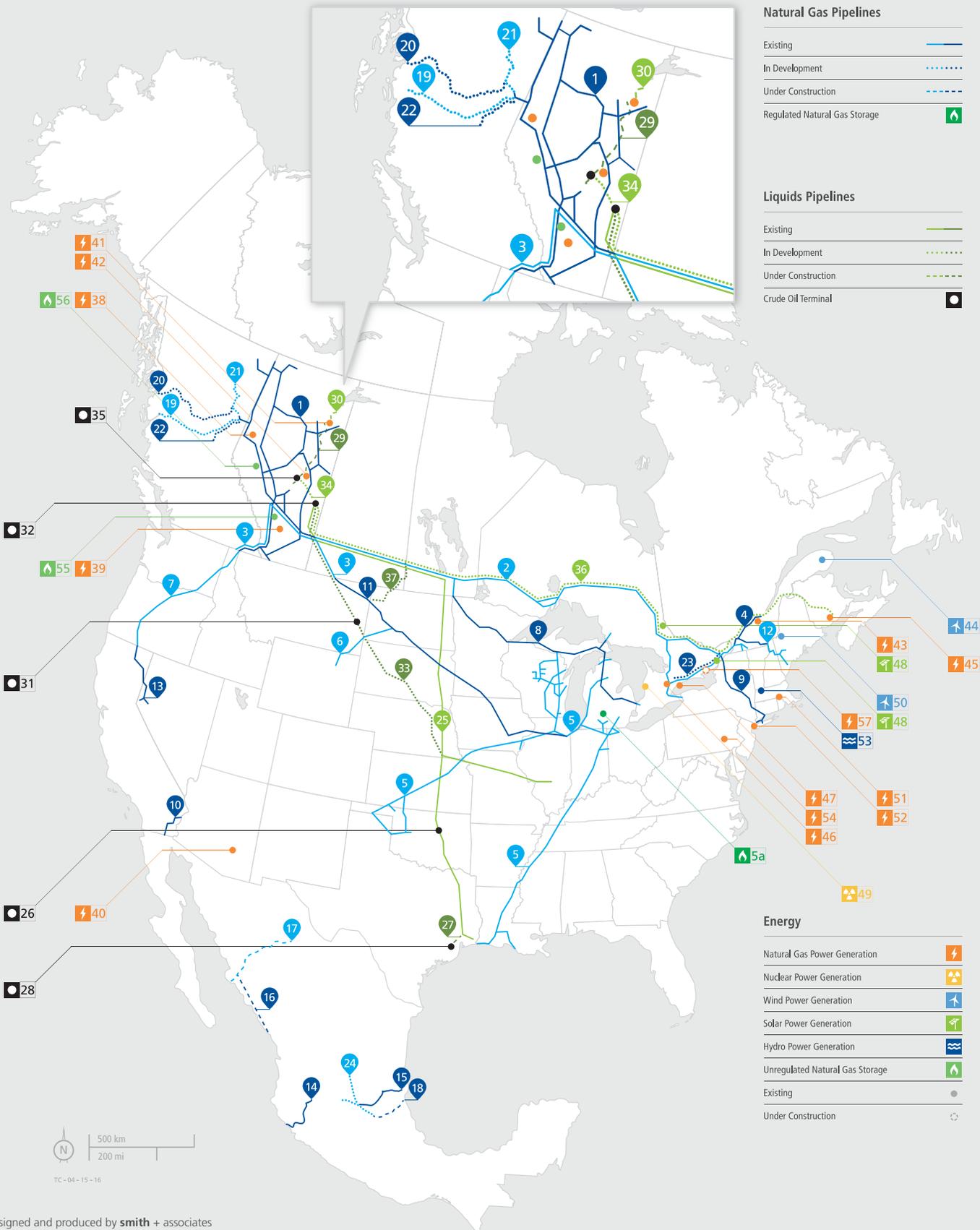
50	Kibby Wind	⬆️
51	Ocean State Power	⚡
52	Ravenswood	⚡
53	TC Hydro	🌊
54	Ironwood <sup>2</sup>	⚡

### Unregulated Natural Gas Storage

55	CrossAlta	▲
56	Edson	▲

### Under Construction

57	Napanee	⚡
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### Natural Gas Pipelines

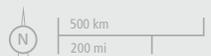
- Existing —
- In Development ⋯
- Under Construction - - -
- Regulated Natural Gas Storage ▲

### Liquids Pipelines

- Existing —
- In Development ⋯
- Under Construction - - -
- Crude Oil Terminal ●

### Energy

- Natural Gas Power Generation ⚡
- Nuclear Power Generation ☢
- Wind Power Generation 🌀
- Solar Power Generation ☀
- Hydro Power Generation 🌊
- Unregulated Natural Gas Storage ▲
- Existing ●
- Under Construction ⊗



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**On the cover:**

As part of our commitment to environmental stewardship, TransCanada employees and contractors volunteered for a day of hands-on conservation with the Nature Conservancy of Canada. Our team removed barbed wire fence that was acting as a barrier to wildlife movement near Millarville, Alberta.



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