

Effective Jan. 1, 2016, a new Energy Trading and Risk Management System ("ETRMS") became operational, to further support optimization and trading capabilities, allowing for streamlined data flows, state-of-the-art linkages, and enhanced scalability for key optimization tools. The ETRMS was integrated into our internal control over financial reporting for the year ended Dec. 31, 2016.

Innovation: Applied Technologies

TransAlta has been at the forefront of innovation in the power generation sector since the early 1900s when we developed hydro assets. To add context, these assets were developed at the same time as the automobile. We have been an early adopter of wind technology in Canada and today are the largest wind generator in the country. Today we run a Wind Control Centre, the only one of its kind in Canada, that monitors, to the second, each and every wind turbine we operate across North America. In 2015 we made our first investment in solar technology with the purchase of the Massachusetts solar facilities.

As we move towards becoming the leading clean power company in Canada by 2030 we will continue to seek solutions to innovate. The announcement of our proposed Brazeau hydro expansion, a 600-900 MW pumped hydro expansion, which will double our hydro capacity in Alberta, demonstrates our ability to seek solutions to create value for both our shareholders and society. Hydro is a clean alternative to both coal and gas and has long-term life. We still operate some of our legacy hydro assets from the early 1900s today.

We strive to keep up to date with power technologies that have the potential to redefine power markets today and in the future. Innovation is constantly happening on a more micro scale at TransAlta. For further communication on innovation at TransAlta please visit www.transalta.com/about-us/innovation.

Social and Relationship Capital

Creating shared value for our stakeholders is the key to social and relationship value creation at TransAlta. The most material impacts to our social and relationship performance are public health and safety, anti-competitive behaviour and fostering better relationships and conditions with all stakeholders, but with a key focus on indigenous groups. Each year we strive to do better in each of these areas.

Public Health and Safety

We seek to ensure public health and safety through measures such as restricting physical access to our operating sites and by minimizing our environmental impact. It is our goal to both keep our employees safe and the peoples and the communities in which we operate.

We specifically look to protect against the following risks:

- harm to person(s),
- damage to property,
- increased liability due to negligence, and
- loss of organizational reputation and integrity.

When addressing concerns such as occupiers liability, our Corporate Security team liaises with stakeholders to facilitate appropriate security countermeasures and controls to prevent or reduce the identified risk. For example, in 2016 our Corporate Security team initiated a security/safety signage campaign across the Hydro fleet to elevate the awareness of the safety risks associated with dams. By implementing signage from a safety perspective, Corporate Security and TransAlta also benefited from a security perspective. Signage gave notice of potential physical dangers, but also allows as an organization and landowner to reduce liability and increase safety through notice, awareness, and mitigation of trespassing and vandalism.

We actively monitor air emissions from our coal and gas plants. Our large coal facilities have Continuous Emissions Monitoring Systems ("CEMS") in place, which help us monitor our pollutant emission levels in line with acceptable limits. When we are in breach of regulatory limits we report this to Alberta Environment & Parks and conduct a root cause analysis to understand how we can eliminate future breaches from occurring. In 2016 we had two breaches at our Alberta coal facilities. Both breaches were minor and due to an instrumentation calibration failure at Keephills 3 and an opacity CEMS analyzer failure at the Sundance operations.

Of note, our coal plants currently capture 80 per cent of mercury emissions and the majority of particulate matter emissions. Both have been deemed harmful to human health, which we recognize and work to minimize through capture. The health impact risk from emissions that do reach our environment is minimized due to the location of our plants, which are located away from urban environments. Independent studies conducted by University of Alberta scientist Dr. Warren Kindzierski, using provincial government monitoring data from the past nine years, also show that only approximately 10 per cent or less of all particulate matter in the airshed in the largest urban environment close to our facilities, Edmonton, can be attributed to coal combustion emissions. Chemical "signatures" for emissions pointed to several sources of air quality concern in Edmonton, including local industries, vehicles, and wood-burning fireplaces.

We are currently evaluating the option of converting some of our coal-fired units to natural gas units in 2022 and 2023, which will represent 90 per cent of our coal fleet at that point in time. This action will reduce our GHG emissions by close to 50 per cent. It will also eliminate the majority, if not all, of our mercury emissions and nitrogen oxide emissions from our Alberta coal facilities.

Stakeholder Relations

TransAlta implemented a corporate stakeholder engagement framework in 2016, a streamlined corporate-wide approach to ensure that engagement and relationship-building practices are consistent across TransAlta's locations and types of work. This framework is modelled and closely tied to the stakeholder engagement aspect of ISO 14001, which is an internationally recognized environmental management standard.

In 2016 we introduced our Stakeholder and Aboriginal Relations ("STAR") tracking program. STAR functions as a communication record-keeping tool, which is managed by our Stakeholder and Aboriginal Relations team. This capacity fulfils our requirements for consultation with stakeholders and aboriginal groups alike, and is capable of producing reports (notably, government reports) as proof of engagement and consultation efforts. Built as a SharePoint page, STAR has the capacity to centralize information and grant different levels of access to the information it stores.

Some features of the STAR program include:

- in-house application with no operating cost or fees,
- centralized for the entire company to use,
- different levels of accessibility (privileges),
- can store email conversations, documents, and voice-mail messages related to any project, event, or issue; and use them in reports, and
- produces an array of statistical reports showing frequencies and volumes of engagement based on project, stakeholder, stakeholder group, issue, or keywords.

The Board believes that it is important to have constructive engagement with its shareholders and other stakeholders and has established means for the shareholders of the Company and other stakeholders to communicate with the Board through the use of a confidential Ethics Helpline or by writing directly to the Board. The contact information for communicating with the Board is published in Whistleblower section of this MD&A. Shareholders and other stakeholders may, at their option, communicate with the Board on an anonymous basis. In addition, the Board has adopted an annual non-binding advisory vote on the Company's approach to executive compensation. The Company is committed to ensuring continued good relations and communications with its shareholders and other stakeholders and will continue to evaluate its practices in light of any new governance initiatives or developments.

Aboriginal Relations

The focus of our efforts in this area is to establish solid relationships with indigenous and Métis communities, recognizing and respecting their rights and focusing on engaging them at the earliest stages of any project or development. Specifically, our aboriginal relations team continues to develop and enhance aboriginal relations in areas of employment, economic development, community engagement, and investment. Since 2014, we have achieved the Canadian Council for Aboriginal Business's silver-level Progressive Aboriginal Relations certification. As noted above, in 2016 we introduced our STAR tracking program, which functions a communication record-keeping and engagement measurement tool.

Local Communities

We provide public benefit through reliable, cost-efficient power and related outputs or services. With the phase-out of coal on the horizon, we seek to secure favourable outcomes for our workers and the communities surrounding our plants. Our proposed coal-to-gas conversions provide the opportunity to maintain some jobs during conversions, to support sector jobs, and to redeploy some of our workforce in the plants or toward renewables growth. Electricity and energy have always been at the heart of the economy in Alberta, and any changes in the industry must therefore support our communities. Conversion will also help keep municipal, provincial, and federal tax revenues supporting these communities. TransAlta advocates for sufficiently long timelines for transition, support for facility redevelopment, funds for retraining, and economic diversification.

Community

During 2016, TransAlta contributed \$2.5 million in donations and sponsorships (2015 - \$3.5 million).

On July 30, 2015, we announced that we were moving ahead with plans to invest US\$55 million over 10 years to support energy efficiency, economic and community development, and education and retraining initiatives in Washington State. The US\$55 million community investment is part of the TransAlta Energy Transition Bill, passed in 2011. This bill was a historic agreement between policymakers, environmentalists, labour leaders, and TransAlta to transition away from coal in Washington State, closing the Centralia facility's two units, one in 2020 and the other in 2025. Although we did not secure additional long-term contracts totalling 500 MW as planned in the original agreement as a condition of the investment, we are following through on our funding pledge and securing mutual benefits agreed with the State for orderly transition.

Competitive Behaviour

On July 27, 2015, the AUC issued a ruling that found, among other things, that our actions in relation to four outage events at our coal-fired generating units, spanning 11 days in 2010 and 2011, restricted or prevented a competitive response from the associated PPA buyers and manipulated market prices away from a competitive market outcome.

On Sept. 30, 2015, TransAlta and the Alberta Market Surveillance Administrator ("MSA") reached an agreement to settle all outstanding proceedings before the AUC. The settlement, which was in the form of a consent order, was approved by the AUC on Oct. 29, 2015. Under the terms of the agreement, we agreed to pay a total amount of \$56 million that included approximately \$27 million as a repayment of economic benefits, approximately \$4 million to cover the MSA's legal and related costs, and a \$25 million administrative penalty. Of this amount, \$31 million was paid in the fourth quarter of 2015, and \$25 million was paid in the fourth quarter of 2016.

When we became aware that the market rules governing forced outages were in dispute, we changed our compliance procedures, and the actions that led to this case have not been repeated. In order to rebuild trust, we asked a national law firm with expertise in electricity markets, and a national accounting firm, to complete independent third-party reviews of our then current compliance procedures around forced outages. We also asked them to review our trading compliance program to ensure that our current practices met the company's legal and ethical obligations and the high expectations of our customers and stakeholders, the results of which were made public during the first half of 2016.

The national law firm assessment concluded that:

- outage practices are consistent with the law in Alberta, and
- senior management has demonstrated a strong commitment to compliance.

Recommendations were provided to formalize the outage practices and procedures and related document management, and to incorporate the procedures into the existing TransAlta Compliance programs in terms of training, investigation procedures and annual reviews.

Using a 10-point compliance effectiveness review framework, the national accounting firm's assessment of TransAlta's Energy Trading Compliance Program concluded that:

- from a program design perspective, TransAlta's program contains each of the 10 components of an effective compliance program, and includes the key elements required and normally seen at industry peers, and
- in terms of operational effectiveness, TransAlta's program meets or exceeds current industry practice in each of the 10 components.

Recommendations were provided in 5 of the 10 areas, for increasing cross functional communications, cross-training of compliance staff, scheduling of training components more frequently throughout a year, formalizing documentation of monitoring tools and performance review assessments for compliance.

TransAlta has accepted all of the recommendations in both reports.

Natural Capital

All energy sources used to generate electricity have some impact on the environment. While we are pursuing a business strategy that includes investing in low-impact renewable energy resources such as wind, hydro, and solar, we also believe that natural gas will continue to play an important role in meeting energy needs as part of this transition. Regardless of the fuel type, we place significant importance on environmental compliance and continued environmental impact mitigation, while seeking to deliver low-cost electricity. Currently the most material natural or environmental capital impacts to our business are GHG emissions, air emissions (pollutants, metals), and energy use. Material impacts that we manage and track include our environmental management systems, environmental incidents and spills, land use, water usage, and waste management.

In the jurisdictions in which we operate, legislators have proposed and enacted regulations to discontinue, over time, the use of the technologies our coal-fuelled plants currently utilize. Our gas and coal facilities can also incur costs in relation to their carbon emissions, depending on the jurisdiction in which the facility is located. Our contracted facilities can generally recover those costs from the customer. Conversely, our renewable generation facilities are generally able to realize value from their environmental attributes. We continue to closely monitor the progress and risks associated with environmental legislation changes on our future operations.

Reducing the environmental impact of our activities has a benefit not only to our operations and financial results, but also to the communities in which we operate. We expect that increased scrutiny will be placed on environmental emissions and compliance, and therefore we have a proactive approach to minimizing risks to our results. Our Board provides oversight to our environmental management programs and emission reduction initiatives to ensure continued compliance with environmental regulations.

Our environmental initiatives include:

- Renewable power growth and offsets portfolio: Over the last 10 years, we have added approximately 1,300 MW in renewable energy capacity. From our Alberta wind fleet, 360 MW of capacity generates offsets that can be applied against GHG emissions in Alberta. Annual revenue generation from these offsets is in the range of \$10 million to \$15 million.
- Environmental controls and efficiency: We continue to make operational improvements and investments to our existing generating facilities to reduce the environmental impact of generating electricity. We installed mercury control equipment at our Canadian Coal operations in 2010 in order to meet Alberta's 70 per cent reduction objectives, and voluntarily at our U.S. coal-fired plant in 2012. In 2016 we achieved an 80 per cent capture rate of mercury at all coal facilities. Our Keephills 3 and Genesee 3 plants use supercritical combustion technology to maximize thermal efficiency, as well as sulphur dioxide ("SO₂") capture and low oxides of nitrogen ("NO_x") combustion technology. Uprate or energy- efficiency projects completed at our Keephills and Sundance plants, including a 15 MW uprate finalized in 2015 at Sundance 3, have improved the energy and emissions efficiency of those units.
- Planning: With respect to environmental rules (as detailed in the following Regional Regulation and Compliance subsection), we investigate the cost effectiveness of multiple technological solutions and various operating models in order to prepare appropriate work scopes. In 2016 we announced our proposed coal to natural gas conversions and support for the Government of Alberta's renewable electricity plans.
- Policy participation: We are active in policy discussions at a variety of levels of government and with industry participants. Where capacity retirements are being mandated, we advocate minimizing the capital requirements of incremental regulation, to allow reinvestment in lower-intensity sources during the transition phase. In Washington State, the retirement of our Centralia coal plant was established through a multi-stakeholder agreement. In 2016 we entered into the MOU with the Government of Alberta, which entails co-operation and collaboration to enable the conversion of coal-fired generation to gas-fired generation.