TransAlta Corporation - Climate Change 2022

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

TransAlta Corporation (“TransAlta”) is a Canadian corporation and one of Canada's largest publicly traded power generators with over 110 years of operating experience. We own, operate, and manage a geographically diversified portfolio of assets utilizing a broad range of fuels including hydro, wind, solar, natural gas, and thermal coal in Canada (5,718 MW, 60 facilities), the United States (1,219 MW, 10 facilities), and Australia (450 MW, 6 facilities).

TransAlta is completing a transition off coal. In 2018, we established the target to provide “No further coal generation by the end of 2025 with 100 per cent of our owned net generation capacity to be from renewables and gas”. Thus far, we have retired or converted 90 per cent of our existing coal fleet and will retire the single remaining unit accounting for 10 per cent or our baseline coal capacity by 2025. Our Clean Energy Investment Plan, announced in 2019, included converting our existing Alberta coal assets to natural gas and advancing our leadership position in renewable electricity. To date, we have retired 4,064 MW of coal-fired generation capacity since 2018 while converting 1,659 MW to natural gas, significantly reducing our carbon footprint. In 2021, we completed the transition in Canada and our remaining coal-fired facility in the United States is committed to be retired on December 31, 2025. In September 2021, we announced a Clean Electricity Growth Plan that includes the following climate-related strategic targets: (i) Deliver 2GW of incremental renewable capacity with a targeted capital investment of $3 billion by the end of 2025, (ii) Accelerate growth in customer-centred renewable energy solutions through the deployment of our 3 GW development pipeline; (iii) Enable a two-fold increase in renewables by 2030; and (iv) Achieve 70 per cent of EBITDA from renewables and storage by the end of 2025. Our enhanced focus on renewable generation and storage solutions for customers is largely driven by the need to decarbonize our company and our customers’ businesses and the increase of demand for renewable generation sources in our operating jurisdictions and beyond. TransAlta has established 16 short- and long-term sustainability targets in support of the United Nations Sustainable Development Goals (UN SDGs) and the Future-Fit Business Benchmark, and we believe we can make a greater positive impact on UN SDG 7 “Affordable and Clean Energy” and SDG 13 “Climate Action”.

In 2021, TransAlta became the first publicly traded Canadian electricity company to commit to GHG emissions reduction targets through the Science Based Targets initiative (SBTi). In December 2021, TransAlta approved a more stringent climate-related target to reduce 75 per cent of our scope 1 and 2 GHG emissions by 2026 from a 2015 base year. We estimate that this is in line with limiting global warming to 1.5°C.

TransAlta uses sustainable or green financing instruments to grow our renewables and storage capacity. In 2021, we converted an existing $1.3 billion loan into a sustainability-linked loan that will align the cost of borrowing to TransAlta's GHG emission reductions and gender diversity targets. We also secured a $173 million green bond financing for TransAlta Renewables' Windrise Wind facility in Alberta, Canada. This supports our goal to deliver on our customers’ needs for clean electricity.

Our 2022+ climate-related targets are presented below:

- By 2026, achieve a 75 per cent reduction of scope 1 and 2 GHG emissions from a 2015 base year. We estimate that this is in line with limiting global warming to 1.5°C and, in December 2021, committed to setting a science-based emissions reduction target through the Science Based Targets initiative (SBTi);

- By 2050, achieve carbon neutrality;

- No further coal generation by the end of 2025 with 100 per cent of our owned net generation capacity to be from renewables and gas; and

- Develop new renewable projects that support our customers' sustainability goals to achieve both long-term power price affordability and carbon reductions.

On a percentage basis, TransAlta has already achieved emissions reductions beyond the 2030 national targets in our operating jurisdictions and we anticipate further reductions before the end of the decade. In 2021, our GHGs emissions (scopes 1 and 2) were estimated to be 12.5 million tonnes as a result of normal operating activities, with a geographic distribution of 63 per cent in Canada, 29 per cent in the US and 8 per cent in Australia. Since 2015, we have reduced GHG emissions by 61 per cent. In 2021, we reduced approximately 3.9 million tonnes of CO2e or 24 per cent over 2020 levels. Reductions in GHG emissions were primarily due to shutdowns during coal-to-gas conversions and coal unit retirements. For over 100 years, TransAlta has been a responsible operator and a proud member of the communities where our employees work and live.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Reporting year	January 1 2021	December 31 2021	Yes	2 years

C0.3

(C0.3) Select the countries/areas in which you operate.

Australia
Canada
United States of America

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

CAD

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your chosen approach for consolidating your GHG inventory.

Operational control

C-EU0.7

(C-EU0.7) Which part of the electric utilities value chain does your organization operate in? Select all that apply.

Row 1

Electric utilities value chain

Electricity generation

Other divisions

Battery storage
Coal mining

C0.8

(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, an ISIN code	CA89346D1078
Yes, another unique identifier, please specify (Legal Entity Identifier)	GJZNVO2UY6DNFNIYH321

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Chief Executive Officer (CEO)	TransAlta's President and Chief Executive Officer CEO (the CEO) is a non-independent Director at the Board who maintains the highest level of oversight on climate-related issues at the executive level. Our CEO develops, for the Board's approval, the strategic plan of TransAlta and the business and operational plans to deliver on the approved strategy including climate-related issues. Examples of the CEO responsibility for climate-related issues include: (i) Implement measures to achieve our reduction of scope 1 and scope 2 GHG emissions by 75 per cent by 2026 from 2015 levels and to continue our path towards carbon neutrality by 2050; (ii) Deliver the Clean Electricity Growth Plan towards 70 per cent of EBITDA from renewables and storage by the end of 2025; and (ii) Accelerate clean energy transition to raise TransAlta corporate profile as a global leader in renewable energy and sustainability. The Board reviews and updates its strategic plan annually during strategic planning sessions, where management provides an assessment on the competitive environment, growth opportunities, regulatory environment, and capital allocation to identify opportunities and risks to our business strategy. In 2021, this strategic planning session included climate-related issues considering growth initiatives and strategies, the evaluation of the coal-to-gas conversions and the repowering of Sundance Unit 5 (2022 Management Proxy Circular, page 49). As part of their responsibilities, in 2021 the CEO sponsored the commitment to a science-based emissions reduction target through the Science Based Targets initiative (SBTi) and the development of a climate-related scenario analysis to understand risks and opportunities and assess our strategy's resiliency under several future climate scenarios, in alignment with the Task Force on Climate-related Financial Disclosures (TCFD) recommendations. Climate-related issues are material to our business, especially the impact from climate policy. Examples of climate-related decisions made by the CEO and Board in 2021 include: (i) commitment to become carbon neutral by 2050, and (ii) setting climate-related targets to reduce 75 per cent of our scope 1 and 2 GHG emissions by 2026 from a 2015 base year, which we estimate is in line with limiting global warming to 1.5°C.
Board-level committee	The highest level of climate change oversight is at the Board level, with specific oversight of certain aspects of the Company's response to climate change being delegated to our Board-level Governance, Safety and Sustainability Committee (GSSC), our Audit, Finance and Risk Committee (AFRC), and our Investment Performance Committee (IPC). The GSSC is comprised of independent directors and assists the Board in monitoring and assessing compliance with climate change regulation and reporting, including recommendations to climate-related target setting. Examples of climate-related issues reviewed by the GSSC include management's response to changes in climate change legislation, policy developments and other draft initiatives, and the potential impact of such initiatives to our business. In 2021, the GSSC recommended approval of an enhanced and accelerated near-term scope 1 and 2 GHG emissions target of 75 per cent below 2015 levels by 2026, as well as the approval of the annual ESG report including the climate-related scenario analysis results. The AFRC is comprised of independent directors and assists the Board in overseeing the integrity of our consolidated financial statements and ensures climate risks and opportunities are factored into financial decision-making. Further, the AFRC is responsible for approving our Commodity and Financial Exposure Management policies and reviewing quarterly Enterprise Risk Management reporting. Examples of climate-related issues reviewed by the AFRC include quarterly updates on the Company's risk identification, mitigation and management assessment processes. In 2021, the AFRC reviewed the Company's credit facility amendments, which included a sustainability metrics incorporating the Company's GHG targets. The IPC is comprised of independent directors and assists the Board in overseeing the management's investment conclusions and the execution of major Board-approved capital expenditure projects that are in furtherance of our strategic plans (e.g., off coal strategy), including overseeing climate risk assessments and mitigation plans. In 2021, the IPC reviewed and recommended to the Board with respect to acquisition opportunities, including the North Carolina solar project, and reviewed key elements relating to the Company's major capital projects, including the Garden Plain and White Rock wind projects.

C1.1b

(C1.1b) Provide further details on the board's oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Scope of board-level oversight	Please explain
Scheduled – all meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Reviewing and guiding annual budgets Reviewing and guiding business plans Setting performance objectives Monitoring implementation and performance of objectives Overseeing major capital expenditures, acquisitions and divestitures Monitoring and overseeing progress against goals and targets for addressing climate-related issues	<Not Applicable>	TransAlta's Board has delegated to the CEO and senior management the responsibility for the day-to-day leadership and management of the Company. The Board monitors and assesses the performance and progress of the Company's goals through candid and timely reports from the CEO and the senior management team. Nevertheless, the Board takes an active and engaged role in working with senior management and overseeing the strategies, risks, governance and affairs of the Company. Our Board of Directors has group-wide oversight of climate-related issues through the Governance, Safety and Sustainability Committee (GSSC), the Audit, Finance and Risk Committee (AFRC), and the Investment Performance Committee (IPC). Meeting quarterly, the GSSC assists the Board in monitoring and assessing compliance with climate change regulation and reporting. The GSSC receives management reports from the Executive Vice President (EVP), Legal, Commercial and External Affairs on changes in climate-related legislation and the potential impact of policy developments on TransAlta's operations. The GSSC then supports the Board in developing Company-wide climate change strategies, policies and practices. The GSSC also reviews environmental protection guidelines, including GHG mitigation, and considers whether our environmental procedures are being effectively implemented. The AFRC and IPC also play a role in managing TransAlta's climate-related risks and opportunities. The AFRC assists the Board in overseeing the integrity of our consolidated financial statements and ensures climate risks and opportunities are factored into financial decision-making. Further, the AFRC is responsible for approving our Commodity and Financial Exposure Management policies and reviewing quarterly ERM reporting. The IPC considers and assesses risks related to capital projects, including overseeing climate risk assessments and mitigation plans. As a result, climate-related capital expenditures, acquisitions and budgets are reviewed by the AFRC and IPC on a case-by-case basis.

C1.1d

(C1.1d) Does your organization have at least one board member with competence on climate-related issues?

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues	Primary reason for no board-level competence on climate-related issues	Explain why your organization does not have at least one board member with competence on climate-related issues and any plans to address board-level competence in the future
Row 1	Yes	TransAlta's Board is composed of individuals with a mix of skills, knowledge, and experience critical to our strategy success and business growth. We maintain a skills matrix where each director indicates whether they have expertise and professional background in areas we consider to be essential for TransAlta, including climate change (2022 Management Proxy Circular, page 36). The skills matrix is also used by the Board as part of its succession planning process, when identifying, selecting and nominating directors for appointment to the Board, and as part of evaluating the necessary skills, experiences and qualifications needed to maximize effective decision-making by the Board and its Committees. In February 2022, the board of TransAlta Corporation participated in an ESG education section focused on climate risk. The session included a presentation from a sustainable investing lead from a major institutional investor discussing climate risk and investor expectations with respect to climate disclosure. In 2021, five of our Board members identified environment/climate change among their top four relevant competencies (2022 Management Proxy Circular, page 36). The Board's Governance, Safety and Sustainability Committee annually reviews the size and composition of the Board and addresses succession planning needs associated with ensuring the Board has the necessary diversity of skills and experience, balanced with the need to maintain continuity of experience and knowledge on the Board.	<Not Applicable>	<Not Applicable>

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
Chief Executive Officer (CEO)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Quarterly
Other C-Suite Officer, please specify (EVP, Legal, Commercial and External Affairs)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Quarterly

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).

TransAlta's President and CEO maintains the highest level of oversight on climate-related issues at the executive management level. Although the Board is responsible for the stewardship of the Company, it has delegated to the President and CEO and the senior management team the day-to-day leadership and management of the Company. The Board monitors and assesses the performance and progress of the Company's goals through candid and timely reports from the CEO and the senior management team. Our CEO develops, for the Board's approval, the strategic plan of TransAlta and the business and operational plans to deliver on the approved strategy including climate-related issues. The Board reviews and updates its strategic plan annually during strategic planning sessions, where management provides an assessment on the competitive environment, growth opportunities, regulatory environment and capital allocation in order to identify opportunities and risks to our business strategy. In 2021, this strategic planning session included climate-related issues considering growth initiatives and strategies, the evaluation of the coal-to-gas conversions and the repowering of Sundance Unit 5, and other matters (2022 Management Proxy Circular, page 49).

At the executive management level, our Executive Vice President (EVP), Legal, Commercial and External Affairs provides the Board and CEO updates on climate-related risks and opportunities to inform business strategy and to ensure alignment with TransAlta's GHG emissions reduction goals. In 2021, they sought and received Executive and Board approval of an enhanced and accelerated near-term emissions target of 75 per cent below 2015 levels by 2026. The EVP provides a quarterly update to the GSSC on climate-related policies that will have an impact on the Company. In 2021, they presented TransAlta's first climate scenario analysis in line with TCFD recommendations to the Board and received approval to publish results of the analysis in the 2021 Integrated Report (page M76). The EVP also presents recommendations regarding our ESG-related targets. In 2021, they sought and received Executive approval to commit to setting a science-based emissions reduction target through the Science Based Targets initiative (SBTi); a first for a publicly traded Canadian electricity Company. The Investment committee is a management committee chaired by our Senior Vice President, M&A, Strategy and Treasurer and is also comprised of the CEO, EVP, Finance & Trading and Chief Financial Officer, and EVP, Legal, Commercial and External Affairs. It reviews and approves all major capital expenditures including growth, productivity, life extensions and major outages. Projects that are approved by the Investment Committee will then be put forward for approval by the Board, if required.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Entitled to incentive	Type of incentive	Activity incentivized	Comment
Corporate executive team	Monetary reward	Emissions reduction project Efficiency project Other (please specify) (Growth in renewable energy)	TransAlta's executive compensation program is aligned with the Company's focus on becoming a leading clean electricity Company and is performance-based. A strong link between executive compensation and Company performance is maintained by offering a metric-based Annual Incentive Compensation Plan (AIC) and a Long-Term Incentive Plan (LTIP). In 2021, we reviewed and refreshed the metrics of our AIC and LTIP to align with our clean energy growth strategy, corporate strategic objectives, and shareholder results. Our strategic goals include growing renewable energy, reducing GHG emissions, and supporting our customers' sustainability goals to decarbonize through on-site low carbon energy generation. In 2021, 20 per cent of our corporate annual incentive plan was linked to achieving specific ESG objectives: 10 per cent related to the completion of CO2 reduction projects at existing facilities and diversity and inclusion and organizational health performance, and 10 per cent was linked to workers' safety. A further 20 per cent of our corporate annual incentive plan was tied to growth, which is focused on expanding TransAlta's portfolio of renewable generation and will help reduce the Company's overall GHG emissions intensity. Our long-term incentive plans include strategic goals related to our focus on clean electricity and strong renewables growth. Further details and highlights of our 2021 executive compensation program results can be found on page 82 of our 2022 Management Proxy Circular.
All employees	Monetary reward	Emissions reduction project Efficiency project Other (please specify) (Growth in renewable energy)	As with the noted executive compensation above, our employees are also incentivized with an annual bonus and certain employees are also granted long-term incentive share units. Unlike the annual incentive compensation for TransAlta's executive team, which measures their performance exclusively on corporate performance, the annual incentive targets for employees are measured against applicable business unit goals, which includes growth in renewables. As a result, a significant component of an employee's compensation can be tied to achieving our strategic goals, which includes growing renewable energy, reducing GHG emissions from our coal-to-gas transition, and supporting our customer sustainability goals to decarbonize through on-site low carbon generation.

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

	From (years)	To (years)	Comment
Short-term	0	3	Our Enterprise Risk Management (ERM) program is designed to help the organization focus its efforts on key enterprise risks and opportunities within the planning horizon of up to 3 years, including climate-related issues that could significantly impact the success of its strategy. As part of the ERM process, annual risk mitigation plans are developed to include near-term actionable step, and longer-term external trends are monitored and reviewed annually as emerging risks.
Medium-term	3	10	Our asset plans and maintenance plans focus on the medium to long-term. Climate change risks at the asset or business unit level are identified through our Total Safety Management System, asset management function and their processes. All identified material risks are added to our ERM register and scored based on likelihood and impact. We do not consider risks in isolation, and major risks are the focus of management response and mitigation plans.
Long-term	10	30	Our asset plans and maintenance plans focus on the medium to long-term. We run full life cycle forecasts on all our assets. Our long-term planning and risk management of climate change included the completion of a climate-related scenario analysis in 2021 to understand risks and opportunities and assess our strategy's resiliency under two future climate scenarios from the International Energy Agency (IEA) 2020 World Energy Outlook and the IEA's Net Zero by 2050 (NZE2050) Roadmap (2021 Integrated Report, page M76). In addition, the Board reviews and updates its long-term strategic plan annually during strategic planning sessions, which in 2021 included climate-related issues considering growth initiatives and strategies, the evaluation of the coal-to-gas conversions and the repowering of Sundance Unit 5, etc. (2022 Management Proxy Circular, page 49).

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

i) Description of the process to define ‘substantive financial impact’: Anything that could incur a substantive 'financial impact', 'strategic impact', ‘stakeholder or reputational impact’ or 'environment, health and safety impact’ to TransAlta and its operation is considered a risk. Risks are assessed based on the impact and likelihood of the risk occurring. The assessment is based on residual risk – after considering processes, controls, initiatives, etc. already in place to mitigate the risk. Risks are prioritised through a 5x5 risk matrix, using an impact scale of 1-5 from minimal to massive/extreme and likelihood scale of 1-5 from rare to almost certain. Risk ratings are represented on a risk heat map and ranked as low, moderate or high according to the overall risk rating.

ii) Definition of ‘substantive financial impact’: A ‘substantive financial impact' may occur when a risk has the possible likelihood to materialise and cause a negative impact on TransAlta’s earnings.

iii) Description of quantitative indicators and thresholds used to define ‘substantive financial impact’: Financial impact is measured based on the total financial impact on the Company’s earnings before interest, taxes, depreciation, and amortization (EBITDA), while the potential likelihood of the risk occurring is considered over a five-year period. For the purpose of this CDP response, we quantify ‘substantive financial impact’ as the result of climate-related risks that could cause a total financial impact on EBITDA of more than $50 million.

iv) Controls in place to monitor risks that could cause ‘substantive financial impact’: Relevant to climate change, we evaluate risks and opportunities that could impact both operations and finance. For example, we continue to evaluate Canada’s carbon price long-term impacts to our asset and portfolio plans, as well as federal government incentive programs for renewables, carbon capture and storage, and hydrogen which may provide out-of-market electricity supply incentives. Prioritized risks are reported to the AFRC quarterly. Moreover, our internal audit team creates an annual audit plan that complements enterprise risk assessments to provide additional assurance to the Board on the effectiveness of programs, projects, systems, and controls. Additional financial assurance is provided by TransAlta’s SOX program which assesses the design, implementation, and operation effectiveness of key internal controls over financial reporting under the Sarbanes–Oxley Act in the US.

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered
Direct operations
Upstream
Downstream

Risk management process
Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment
More than once a year

Time horizon(s) covered
Short-term
Medium-term
Long-term

Description of process
i) Process for identifying, assessing and responding to climate-related risks and opportunities. Short, medium and long-term climate change risks are identified, monitored and managed through our Enterprise Risk Management (ERM) processes. To identify, assess and manage climate-related risks and opportunities across our direct operations and value chain (upstream and downstream), the Board relies on the Governance, Safety and Sustainability Committee (GSSC), our Audit, Finance and Risk Committee (AFRC), and our Investment Performance Committee (IPC). The GSSC assists the Board in monitoring and assessing compliance with climate change regulation and reporting, including receiving reports and briefings on Management’s initiatives with respect to changes in climate change legislation, policy developments as well as assessing the impact of the GHG policies implementation on the company’s business. The AFRC assists the Board in ensuring climate risks and opportunities are factored into financial decision-making. The IPC considers and assesses risks related to capital projects, including overseeing climate risk assessments and mitigation plans. As a result, climate-related capital expenditures, acquisitions and budgets are reviewed by the AFRC and IPC on a case-by-case basis. Climate-related risks and opportunities are also reviewed and assessed in accordance with the TCFD recommendations during the elaboration of the Annual Integrated Report, which is approved by the Board. Finally, the Board reviews and updates its long-term strategic plan annually during strategic planning sessions, which in 2021 included climate-related issues considering growth initiatives and strategies, the evaluation of the coal-to-gas conversions and the repowering of Sundance Unit 5. The CEO and executive management review and report on key risks quarterly. At the Management level, the Investment Committee reviews and approves all major capital expenditures including growth, productivity, life extensions and major outages. Projects that are approved by the Investment Committee will then be put forward for approval by the Board, if required. Climate change issues at the asset or business unit level are identified through our Environmental Management Systems, asset management function and systems, our energy and trading business, active monitoring, active participation/communication with stakeholders, liaison with our corporate function, active participation in working groups, government engagement and more. All identified material risks are added to our ERM risk register. These risks are assessed and scored based on likelihood and impact (which could have 'substantive financial impact', 'strategic impact', ‘stakeholder or reputational impact’, or 'environment, health and safety impact’). Major risks are the focus of management response and mitigation plans. The business unit and corporate functions work closely together and provide information on risks and opportunities to management, the executive team, and the Board. One area that is constantly monitored is climate policy, including the impacts on cost, growth, and compliance.

C2.2a

(C2.2a) Which risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Current environmental and climate specific regulation can and does impact our operations and our business. Both current and emerging regulation is assessed through our Enterprise Risk Management (ERM). In the US, for example, state and regional climate and market policies have a significant impact on the pace of energy transition with many governments operating under renewable portfolio standards and carbon pricing regimes. TransAlta operates two thermal generating facilities in the US that could be subject to short-term climate policy changes, but our exposure to this policy risk is low. TransAlta's single coal unit in Washington State is subject to a retirement agreement with the state government that exempts the facility from carbon pricing prior to its end of life in 2025. TransAlta's cogeneration facility located in Ada, Michigan, operates under a contract that reduces the Company's exposure to policy risk. In addition, our government relations and regulatory teams stay closely connected to current regulation in order to stay informed on current challenges and opportunities, while also being prepared for potential changes to regulation.
Emerging regulation	Relevant, always included	Environmental and climate specific regulation can and does impact our operations and our business. Both current and emerging regulation is assessed through our ERM. Significant carbon market changes, both provincially and federally in Canada, have been both a current and emerging risk in Canada in the last several years. For example, the escalation in carbon prices and emissions performance regulation may impact TransAlta's natural gas generation fleet in Canada as governments escalate policy stringency to meet 2030, 2035 and 2050 targets. Our management response in 2021 was to develop TransAlta's Clean Electricity Growth Plan, which will reduce proportional exposure to potential policy and regulatory decisions that negatively impact natural gas generation. In addition, TransAlta's policy, regulatory, and government relations teams actively engage in official consultation processes, as well as engage political, department, and agency staff. Partnerships are fostered with like-minded industry groups and associations. We continue to advocate for smart policy decisions that achieve emissions reduction, align with our commitment to achieving a 75 per cent GHG emissions reduction over 2015 by 2026, carbon neutrality, and support our business model (focus on clean, affordable, and reliable power for our customers).
Technology	Relevant, always included	Technological changes to support the low-carbon transition present both risks and opportunities for TransAlta. We evaluate existing and emerging impacts of technology through our technologies team and our ERM process. Examples of technology risks and opportunities include infrastructure changes (such as shift to distributed energy and away from large-scale power generation infrastructure assets and projects) and digitization combined with greater adoption of energy efficiency (less use of our end product). Cost-competitive battery storage will enable greater adoption of renewables and a shift to a distributed power generation model. We continue to evaluate battery storage for its financial viability while monitoring the potential impact battery technology could have on natural gas power generation. In 2020, we completed our first battery storage (10 MW) project at one of our wind farms in southern Alberta. In 2021, we agreed to deliver a hybrid system of solar with battery storage (48 MW) in Western Australia. We continue to investigate the possibility of battery storage at our other facility locations. Our teams continuously adopt improved technology at each of our new developments, which helps protect our shareholder value and maintain reliable and affordable electricity delivery. We are well-positioned to take advantage of technological opportunities in storage through hydro and/or battery power. We are also well-positioned to take advantage of advancements in renewable technologies as we build new facilities. We are actively accelerating our renewable growth strategy, with $3 billion in investment and 2 GW of growth planned by 2025. We will continue monitoring new technologies such as storage, hydrogen and CCUS for future deployment.
Legal	Relevant, always included	The risk and liability associated with climate change, specific to, for example: regulatory compliance, disclosure, mitigation, adaption, failure to adapt operations, or investment decisions are increasingly being evaluated through our ERM process. We are mature in areas such as disclosure and regulatory liability risk. We have noted the trends in increased climate litigation for some time and have mitigated potential risk through alignment of our strategy with global decarbonization goals and we have increased our transparency on climate risks and opportunities by enhancing our disclosure. For example, we have reported to this CDP climate change disclosure request for 10+ years, we have aligned climate disclosure with the Task Force on Climate-related Finance Disclosures (TCFD) recommendations in our annual integrated report for five years, we have established a voluntary GHG reduction target to 2026, and we have established a voluntary carbon neutrality target for 2050.
Market	Relevant, always included	Our major market risks are associated with our coal and natural gas assets. Increased costs for natural gas supply due, in part, to carbon pricing changes could impact our operating costs. We actively monitor market risks through our energy marketing and asset optimization teams and our ERM process. We manage the market risks to our coal assets by converting them to natural gas and plan to fully transition off coal by 2025. Further, our corporate functions apply regionally specific carbon pricing, both current and anticipated, as a mechanism to manage future risks of uncertainty in the carbon market. To simultaneously manage our risks and leverage market opportunities, we continue operating our hydro, wind and solar facilities and are investing in expanding our renewable energy fleet. We currently have over 20 renewable projects that are either under construction or in the development stage. We are committed to growing our clean energy fleet and since 2019 have added over 400 MW of renewables and storage, including utility-scale battery storage. In 2021, we retired or converted 2,260 MW of coal generation. Further, we have approximately 3 GW of wind and solar pipelines and organized Canadian, US and Australian clean energy growth teams. Our renewable fleet makes our overall portfolio more resilient to climate risk, provides increased flexibility in generation and creates incremental environmental value through environmental attributes. Lastly, we recognize the opportunity to grow our ancillary services, such as systems support, providing flexibility to the decarbonizing grid.
Reputation	Relevant, always included	Negative reputational impacts, including revenue loss and reduced customer base, are evaluated through our ERM process. In the past, we experienced negative reputational impacts due to our coal operations, including a negative impact on the market price of our common shares. Our transition away from coal mitigates this reputational risk. In 2021, we achieved full phase-out of coal in Canada. This means TransAlta's thermal facilities in Canada have been fully transitioned to a 100 per cent natural gas operation. The Highvale coal mine was closed. In the US, Centralia Unit 1 retired on Dec. 31, 2020, and the remaining Centralia unit is set to retire on Dec. 31, 2025, per an agreement with the State of Washington. As consumer trends move in favour of renewable and clean electricity, we are investing in a diversified mix of renewable generation and optimizing our natural gas fleet. We continue to actively monitor and manage reputational risks by delivering renewable power solutions while maintaining competitive costs and reliability.
Acute physical	Relevant, always included	Climate change related acute and chronic physical risks and opportunities are assessed through our ERM with support from business units and subject matter experts. We have operating assets in three countries and varied geographic locations, many of which could be impacted by extreme weather events. We are thus continuously evaluating the potential impact of acute climate change on our business. Our facilities, construction projects and operations are exposed to potential interruption or loss from environmental disasters (e.g., floods, strong winds, wildfires, ice storms, earthquakes, tornados, cyclones). A significant climate change event could disrupt our ability to produce or sell power for an extended period. Therefore, we strive to mitigate future impacts with climate adaptation solutions. For example, our gas facility at South Hedland, Australia, is built with climate adaptation in mind. We designed the facility to withstand a category 5 cyclone (the highest cyclone rating). We have mitigated the risk of floods that can occur in the area by constructing the facility above normal flood levels. In 2019, a category 4 cyclone hit this facility but did not impact operations. We were able to continue generating electricity through the storm despite widespread flooding and the shutdown of the nearby port.
Chronic physical	Relevant, always included	Climate change related acute and chronic physical risks and opportunities are assessed through our ERM with support from business units and subject matter experts. We continuously investigate the physical impacts of chronic climate change on our operating assets and actively integrate climate modelling into our long-term planning. For example, changes to water flow or wind patterns could impact our hydro and wind businesses and associated revenue generation.

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier
Risk 1

Where in the value chain does the risk driver occur?
Upstream

Risk type & Primary climate-related risk driver

Current regulation	Carbon pricing mechanisms

Primary potential financial impact
Increased direct costs

Climate risk type mapped to traditional financial services industry risk classification
<Not Applicable>

Company-specific description
Carbon price increases the cost of our natural gas operations. TransAlta's 2021 climate scenario analysis results show that additional mandated emission reductions could force our remaining plants to invest in technologies like CCUS, increasing the operating costs for natural gas plants further. Natural gas assets in the US and Australia face less risk compared to assets in Canada. In the US, TransAlta operates two thermal generating facilities that could be subject to short-term climate policy changes, but our exposure to this policy risk is low. TransAlta's single coal unit in Washington State is subject to a retirement agreement with the state government that exempts the facility from carbon pricing prior to its end of life in 2025. TransAlta's cogeneration facility located in Ada, Michigan, operates under a contract that reduces the Company's exposure to policy risk. In Australia, our natural gas assets may face reduced policy risk related to changes in government policies as our assets are predominantly contracted and serve remote industrial load. Escalation in carbon prices and emissions performance regulation may impact TransAlta's natural gas generation fleet in Canada as governments escalate policy stringency to meet 2030, 2035 and 2050 targets. Our Alberta natural gas fleet is composed by six facilities with a total of 1,724 MW, which represents 62 per cent of our global gas capacity and has experienced significant increased operating costs due to carbon pricing increases from $20/tonne in 2019 to $40/tonne CO2e in 2021 and $50/tonne CO2e in 2022.

Time horizon
Short-term

Likelihood
Virtually certain

Magnitude of impact
High

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
33000000

Potential financial impact figure – maximum (currency)
58000000

Explanation of financial impact figure
The potential financial impact figures are calculated considering the carbon compliance cost of exposed natural gas facilities and assuming an operation control basis. Of the total six facilities, we excluded two facilities that are accounted under our scope 3 GHG emissions (Poplar Creek and Sheerness) and one that is a cogeneration facility (Fort Saskatchewan) not currently exposed to climate-related regulatory risk under the Alberta's Technology Innovation and Emissions Reduction Regulation (TIER). Therefore, the risk exposure to our natural gas assets affects only three facilities (Keephills Unit 2, Keephills Unit 3 and Sundance Unit 6), which were converted from thermal coal to natural gas in 2021. Carbon costs in Alberta were $40/tonne CO2e in 2021 and $50 in 2022 as per Canadian federal rules. Starting in 2023, carbon pricing is expected to increase by $15 annually until 2030 with a $170/tonne price. The time horizon used to calculate the potential financial impact figures is 2026, in alignment with our target of 75 per cent GHG emissions reductions by 2026. We estimate that this is in line with limiting global warming to 1.5°C. The maximum potential financial impact is calculated for 2022 using a minimum carbon cost of $50/tonne CO2e, which equates to approximately $58 million. The minimum potential financial impact is calculated for 2026 based on the maximum carbon compliance cost of $110//tonne CO2e, which equates to approximately $33 million. In both calculations, we used a performance standard of 0.37 tonnes CO2e per MWh as per the current Alberta TIER performance standard, taking the difference between the facility emission intensity and the performance standard and multiplying by the carbon price. This assumes the plants operate in natural gas and not coal.

Cost of response to risk
3000000000

Description of response and explanation of cost calculation
i) Description of response: Case Study. Situation: TransAlta's 2021 climate scenario analysis results have shown that escalation in carbon prices and emissions performance regulation may impact TransAlta's coal and natural gas generation fleet as governments escalate policy stringency. Action: In response to this risk in 2021, we completed our conversion of existing Canadian coal assets to natural gas, achieving our goal of transitioning off coal in Canada. In 2025 we will also retire our single remaining coal unit, located in the United States, to complete TransAlta's transition away from coal generation. Our coal-to-gas facilities fit well within government plans to continue providing reliable and competitively priced electricity for consumers and industry. In 2021, we also announced our Clean Electricity Growth Plan which will see the Company execute on 2 GW of renewables growth by 2025. Result: The plan will reduce the proportional Company exposure to potential policy and regulatory decisions that negatively impact natural gas generation. Our remaining natural gas facilities operate under contract, reducing TransAlta's exposure to changes in carbon pricing. ii) Explanation of cost calculation: TransAlta's Clean Electricity Growth Plan has a targeted capital investment of $3 billion by the end of 2025. The plan will largely be funded from current cash balances, cash generated from operations, and asset-level financing. Once fully operational, the new assets are targeted to deliver incremental average annual EBITDA of $250 million.

Comment
No further information.

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?
Yes

C2.4a

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier
Opp1

Where in the value chain does the opportunity occur?
Downstream

Opportunity type
Products and services

Primary climate-related opportunity driver
Development and/or expansion of low emission goods and services

Primary potential financial impact
Increased revenues resulting from increased production capacity

Company-specific description
The results of TransAlta's 2021 climate-related scenario analysis, aligning with a 1.5°C world, have shown that opportunities to grow the renewable fleet exist across all scenarios and locations which in turn will increase our revenues. Renewable assets (hydro, wind, solar) are expected to become the default form of generation with demand for power from these types of assets increasing. The decreasing cost of renewables also facilitates the growth of a renewable fleet, especially under the International Energy Agency-IEA's Net Zero by 2050 (NZE2050) and Sustainable Development (SDS) scenarios. TransAlta's renewable energy commitment began more than one hundred years ago when we built the first hydro assets in Alberta, which still operate today. In 2002, we acquired our first wind farm, in 2015, our first solar farm, and in 2020, our first battery storage facility. Today, we operate over 50 renewable facilities across Canada, the US and Australia. We are proud to be one of the largest producers of wind power in Canada and the largest producer of hydro power in Alberta — we have grown our nameplate renewable energy capacity from approximately 900 MW in 2000 to over 2,800 MW in 2021. As a leader in North American renewable electricity, we are well-positioned to build renewable energy facilities and hybrid facilities to support customer decarbonization goals.

Time horizon
Short-term

Likelihood
Virtually certain

Magnitude of impact
Medium-high

Are you able to provide a potential financial impact figure?
Yes, an estimated range

Potential financial impact figure (currency)
<Not Applicable>

Potential financial impact figure – minimum (currency)
138400000

Potential financial impact figure – maximum (currency)
163400000

Explanation of financial impact figure
TransAlta's Clean Electricity Growth Plan will deliver 2 GW of incremental renewable capacity with a targeted capital investment of $3 billion by the end of 2025. These new assets, once fully operational are targeted to deliver incremental average annual EBITDA of $250 million. As part of our Clean Electricity Growth Plan, this Company-specific opportunity is expected to create an average annual EBITDA of $138.4 million to $163.4 million for TransAlta and support GHG reduction goals for customers. To quantify the financial impact figure, we used the estimated average annual EBITDA for each project, which includes minimum and maximum expected figures except for North Carolina Solar with $11.4 million (US$ 9 million): White Rock Wind $53-59 million (US$42-46 million), Garden Plain $14-18 million, Northern Goldfields Solar $8-9 million (AU$9-10 million), Horizon Hill $32-44 million (US$25-35 million), Windrise $20-22 million. The figures are forward-looking; they are not defined and have no standardized meaning under IFRS. For detailed information on the figures used, refer to TransAlta's 2021 Integrated Report pages M4, M9, M10 and F85.

Cost to realize opportunity
1626000000

Strategy to realize opportunity and explanation of cost calculation
a) Strategy to realize opportunity: Case Study. Situation: Our strategy to realize this opportunity and increase our revenues from growing the renewable fleet involves achieving a 100 per cent mix of renewables and natural gas. Action: In 2021, as part of our Clean Electricity Growth Plan we set the goal to achieve 70 per cent EBITDA from renewables and storage by the end of 2025. In 2021, TransAlta announced 600 MW of new build projects and asset acquisitions and has 240 MW in advanced stage development. Results: Examples of 2021-2023 wind and solar developments (total of 1,006 MW) including their status and expected capacity are: i) Acquisition: North Carolina Solar (122 MW, US); ii) Commissioned in November 2021 - Windrise (Canada, 206 MW); and iii) Under construction in 2021/2022 - Garden Plain, Wind (130 MW, Canada), White Rock Wind (300 MW, US), Northern Goldfields Solar with battery storage (48 MW, Australia) and Horizon Hill, Wind (200 MW, US). We continue to develop renewable energy facilities to support customers achieving their sustainability goals and targets, such as 100 per cent renewable power targets and/or GHG reduction targets. Production from renewable electricity in 2021 resulted in the avoidance of approximately 2.6 million tonnes of CO_2e for our customers. b) Examples of how our renewable energy projects benefit customers: our solar facility in North Carolina is subject to a long-term PPA with Duke Energy, which receives the renewable electricity, capacity and environmental attributes from 20 sites, our Garden Plain wind project in Alberta is subject to a PPA with Pembina and an investment-grade customer, our White Rock Wind Projects in Oklahoma is subject to a PPA with Amazon, and our Northern Goldfields Solar Project with a battery energy storage system in Western Australia is subject to a PPA with BHP. Our Horizon Hill wind project is subject to a long-term PPA with Meta. Our Windrise project is fully contracted through a 20-year offtake agreement with the Alberta Electric System Operator. c) Explanation of cost calculation: Total cost is estimated at approximately $1.626 billion, assuming the middle range cost estimates for each project: North Carolina Solar - $102 million (actual acquisition cost), White Rock Wind - $596 million, Garden Plain - $195 million, Northern Goldfields Solar - $64 million, Horizon Hill - $384 million, Windrise - $285 million (TransAlta's 2021 Integrated Report pages M4, M10 and F85).

Comment
No further information.

C3. Business Strategy

C3.1

(C3.1) Does your organization's strategy include a transition plan that aligns with a 1.5°C world?

Row 1

Transition plan

Yes, we have a transition plan which aligns with a 1.5°C world

Publicly available transition plan

Yes

Mechanism by which feedback is collected from shareholders on your transition plan

We have a different feedback mechanism in place

Description of feedback mechanism

TransAlta consistently communicates our corporate strategy to our shareholders, which includes our transition plan. The Company's past achievements and future strategy are presented to shareholders by our CEO each year during the annual general meeting (AGM). Examples of TransAlta's transition plan discussed during our most recent AGM (April 28, 2022) include: - Completing coal-to-gas conversions, and achieving off-coal in Canada in 2021, - Updates on TransAlta's Clean Electricity Growth Plan execution, - Setting a 75 per cent CO2 emissions reduction target by 2026 over 2015 levels. Similar to any strategic decision the Company makes, the shareholders can voice their support by approving (or withholding votes for) the election of directors (including our CEO). Additionally, annually we deliver several planned and ad-hoc engagements with investors regarding our low-carbon transition plan. Examples of planned engagements include investor presentations, quarterly results calls, investor days, and investor conferences. Prior to each quarterly results calls, we reach out to investors and provide them the opportunity to engage on topics including climate change including our transition plan. We also respond to their feedback on our decarbonization strategy on an ad-hoc basis. During investor conferences, we organize one-on-one engagements between investors and our executive team on sustainability and climate change issues. Specifically, during our 2021 Investor Day our CEO and our Executive Vice President, Legal, Commercial and External Affairs presented our corporate plan to decarbonize our operations (Slides 17, 18 and 26, 27). Other communication tools to engage on our decarbonization journey include ah-hoc and quarterly press releases such as on December 29, 2021 "TransAlta Achieves Full Phase-Out of Coal in Canada".

Frequency of feedback collection

More frequently than annually

Attach any relevant documents which detail your transition plan (optional)

Attached is the presentation deck shared at TransAlta Corporation's Annual General Meeting held with shareholders on April 28, 2022.
TransAlta-AGM-Final.pdf
TransAlta_2021_Investor_Day.pdf

Explain why your organization does not have a transition plan that aligns with a 1.5°C world and any plans to develop one in the future

<Not Applicable>

Explain why climate-related risks and opportunities have not influenced your strategy

<Not Applicable>

C3.2

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

	Use of climate-related scenario analysis to inform strategy	Primary reason why your organization does not use climate-related scenario analysis to inform its strategy	Explain why your organization does not use climate-related scenario analysis to inform its strategy and any plans to use it in the future
Row 1	Yes, qualitative and quantitative	<Not Applicable>	<Not Applicable>

C3.2a

(C3.2a) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices
Transition scenarios: IEA STEPS (previously IEA NPS)	Company-wide	<Not Applicable>	In STEPS, the energy system has no major additional climate and environmental policies enacted by government(s). STEPS assumes that carbon pricing continues in Canada while no carbon price is set in the US or Australia. STEPS also assumes that the power sector reduces emissions by 45 per cent by 2040 while natural gas generation capacity increases. Finally, STEPS is limited to the deployment of commercial-ready technologies, including wind and solar. The IEA models make assumptions about technology, energy policy, CO2 prices, fuel prices, energy use, resources, markets and various societal, political and economic drivers such as population and GDP. No changes were made to the inputs or assumptions in the scenarios. The climate scenarios analysis considered TransAlta's 2020 EBITDA, business segments, installed capacity, and generation as baseline data for scenario 2020-2040. Electricity pricing assumptions were not made as part of this analysis.
Transition scenarios: IEA SDS	Company-wide	<Not Applicable>	In SDS, the goals of the Paris Agreement (2015) are achieved, resulting in net-zero emissions by 2070. The SDS assumes a rapid increase in clean energy policies and investments that position the energy system to also achieve key UN SDGs. In SDS, all current net-zero pledges are achieved, and there are extensive efforts to reduce emissions. SDS assumes that carbon pricing continues in Canada and is set in the US and Australia. It also assumes that the power sector reduces emissions by 90 per cent by 2040 while natural gas capacity remains stable into 2030 and declines toward 2040. Finally, SDS assumes that beyond wind and solar, the energy system relies on batteries, storage and some level of carbon capture, utilization and storage (CCUS) and hydrogen. The IEA models make assumptions about technology, energy policy, CO2 prices, fuel prices, energy use, resources, markets and various societal, political and economic drivers such as population and GDP. No changes were made to the inputs or assumptions in the scenarios. The climate scenarios analysis considered TransAlta's 2020 EBITDA, business segments, installed capacity, and generation as baseline data for scenario 2020-2040. Electricity pricing assumptions were not made as part of this analysis.
Transition scenarios: IEA NZE 2050	Company-wide	<Not Applicable>	IEA Net Zero by 2050 (NZE2050) represents a pathway for the global energy sector to achieve net-zero emissions by 2050. This scenario also assumes key energy-related SDGs are achieved through universal energy access by 2030 and major improvements in air quality. NZE2050 is built upon the idea that a global increase in electrification supports the journey to net-zero. It assumes that an aggressive carbon price is set in Canada, the US and Australia. It also assumes the power sector reaches net-zero emissions by 2035 in advanced economies while natural gas capacity is stable to 2030 and declines significantly into 2040. Like the SDS, NZE2050 assumes that beyond wind and solar, the energy system relies on batteries, storage and some level of CCUS and hydrogen. The IEA models make assumptions about technology, energy policy, CO2 prices, fuel prices, energy use, resources, markets and various societal, political and economic drivers such as population and GDP. No changes were made to the inputs or assumptions in the scenarios. The climate scenarios analysis considered TransAlta's 2020 EBITDA, business segments, installed capacity, and generation as baseline data for scenario 2020-2040. Electricity pricing assumptions were not made as part of this analysis.
Physical climate scenarios: RCP 8.5	Company-wide	<Not Applicable>	The IPCC's RCP 8.5 (previously SSP5 8.5) climate change scenario was adopted to assess the physical risks associated with our renewable assets in Canada, the US and Australia. The RCP 8.5 represents the high end of the range of future pathways and was selected for this reason, assuming a business-as-usual path consistent with the current pace of global emissions. The RCP 8.5 pathway delivers a temperature increase of about 4.3˚C by 2100, relative to pre-industrial temperatures. The model CMIP6 was chosen based on geographical completeness. The baseline used was 1995-2014 for a near-term period of 2021-2040. We assessed quantitative and qualitative variables such as maximum temperature, minimum temperature, total precipitation, snowfall, surface wind, sea level rise, and surface water flow.

C3.2b

(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.

Row 1

Focal questions

In 2021, TransAlta conducted climate scenario analysis to understand risks and opportunities and assess our strategy's resiliency under several future climate scenarios. The analysis utilized scenarios from the International Energy Agency's (IEA) 2020 World Energy Outlook, a large-scale simulation model designed to replicate how energy market's function. We used three scenarios, Stated Policies (STEPS), Sustainable Development (SDS) and Net Zero by 2050 (NZE2050). Detailed information starts on page M77 of our 2021 Integrated Report. i) Focal questions to be addressed using climate-related scenario analysis: - What are the risks and opportunities associated with our natural gas assets? - What are the risks and opportunities associated with our business strategy to grow our renewables fleet (hydro, solar, wind)?

Results of the climate-related scenario analysis with respect to the focal questions

i) Focal question 1 - What are the risks and opportunities associated with our natural gas assets? Case study. Situation: Under the NZE2050 scenario we anticipated higher operational costs driven by an increase in carbon price to US$205/tonne CO2e by 2040 in all our operating regions and lower operational capacity is expected to impact the profits from our natural gas assets. Task: Decarbonizing the electricity sector is a key pillar of global climate efforts. Hence, we must continually raise our level of ambition as we did in early 2021 by setting our carbon neutrality target for 2050. Action: In late 2021, TransAlta adopted a more stringent target to reduce 75 per cent of our scope 1 and 2 GHG emissions by 2026 from a 2015 base year (32,227,815 tonnes CO2e). We estimate that this is in line with limiting global warming to 1.5°C. We also committed to pursuing the validation of this new target through the Science Based Targets initiative (SBTi) and used their Sectoral Decarbonization Approach (SDA) methodology. This approach aligns us with the Paris Agreement and UN Sustainable Development Goal (SDG) 13 on climate action. Results: We became the first publicly traded Canadian energy Company to commit to setting a science-based emissions target. This step is critical in ensuring that our actions are aligned with the steps required to achieve global climate goals in line with a 1.5°C pathway. To help achieve our targets, in 2021 we also announced our Clean Electricity Growth Plan which will see the Company execute on 2 GW of renewables growth by 2025. ii) Focal question 2 - What are the risks and opportunities associated with our business strategy to grow our renewables fleet? Case study. Situation: Our strategy is focused on the operation of our existing assets (wind, hydro, solar, gas, storage and coal) and the development of renewable energy, storage and low-carbon natural gas generation. From 2000 to 2021, we grew our nameplate renewables capacity from approximately 900 MW to over 2,800 MW. Task: A growth of renewable electricity generation of approximately 950 per cent is expected by 2040 compared to 2019 levels. This results in renewables comprising more than 85 per cent of the electricity generation in the regions we operate. The transition of hydro to baseload capacity is expected to create upside for TransAlta. An increase in TransAlta's renewable capacity and demand are expected to enable growth and higher revenues. Action: Based on the scenario analysis, TransAlta assessed the acceleration of our business strategy to grow our renewables, and in 2021 we announced our Clean Electricity Growth Plan which will see the Company execute on 2 GW of renewables growth by 2025. Results: By the end of 2025, we expect 70 per cent of our EBITDA to be derived from renewables. To help combat the challenges of renewable energy intermittency, we continue to invest in new technology development such as battery storage.

C3.3

(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	i) Description of how our strategy for products and services has been influenced by climate-related risks and opportunities: Over the past decade, TransAlta has been shifting from providing a GHG-intensive product to a low-carbon product to meet the need to decarbonize and mitigate associated societal risks, but also to meet changing goals from our customers. ii) Case study. Situation: From 2000 to 2021, we grew our nameplate renewables capacity from approximately 900 MW to over 2,800 MW. Based on our 2021 scenario analysis, an increase in TransAlta's renewable capacity and demand are expected to enable growth and higher revenues. Task: Since 2018, TransAlta has maintained the target to provide "No further coal generation by the end of 2025 with 100 per cent of our owned net generation capacity to be from renewables and gas" (see case study for Operations), and in 2021 we decided to assess how to accelerate our business strategy to grow our global renewables fleet. Action: In September 2021, we announced our Clean Electricity Growth Plan which will see the Company execute on 2 GW of renewables growth by 2025. By the end of 2025, we expect 70 per cent of our EBITDA to be derived from renewables. Results: The evolution of our decarbonization targets – from phasing out coal to expanding renewable electricity generation – has shaped our Company to become a leader in clean energy in North America. Our investments demonstrate our commitment to a cleaner future, and we are on track to enable a two-fold increase in renewables by 2030.
Supply chain and/or value chain	Yes	i) Description of how our strategy for supply chain and value chain has been influenced by climate-related risks and opportunities: Our customer base is increasingly integrating ESG risk into their business decisions and as such we see an advantage to continued growth in clean power technologies to support our customer sustainability goals, such as RE100 or net-zero ambitions. ii) Case study. Situation: International research confirms that reducing global carbon dioxide emissions to net zero by 2050 is consistent with efforts to limit the long-term increase in average global temperatures to 1.5˚C. Task: In 2020 we set ourselves the task to "Develop new renewable projects that support customer sustainability goals to achieve both long-term power price affordability and carbon reductions". In addition, we rolled out a Supplier Relationship and Performance Management program with a few of our key and strategic suppliers. The goals of the program include ensuring alignment of our suppliers' goals with those of TransAlta, streamlining communications while providing a platform to discuss how to elevate performance, creating value though access to innovative ideas and working closely with the suppliers on executing activities. Action: In December 2021, TransAlta accelerated its climate-related target and adopted a more stringent target to reduce 75 per cent of our scope 1 and 2 GHG emissions by 2026 from a 2015 base year (32,227,815 tonnes CO2e). We estimate that this is in line with limiting global warming to 1.5°C. In addition, we revised our Supplier Code of Conduct that applies to all vendors and suppliers of TransAlta. Under this code, suppliers of goods and services to TransAlta are required to adhere to our core values, including as they pertain to health and safety, ethical business conduct and environmental leadership. Climate change management cuts across all three of these values for suppliers. Results: We are very proud of our emissions track record to date. Our Company has achieved a 29 million tonne annual GHG emission reduction from 2005 levels. On a percentage basis, this reduction already exceeds the 2030 national emissions targets in Canada, the US and Australia where we operate. These steps are critical in ensuring that our actions are aligned with the steps required to achieve global climate goals in line with a 1.5°C pathway.
Investment in R&D	Yes	i) Description of how our strategy for investment in R&D has been influenced by climate-related risks and opportunities: Increased revenues through access to new and emerging markets are an opportunity expected to enable growth and higher revenues under a net-zero economy. With more than 85 per cent of electricity in areas we operate made up of renewables, there will be big steps forward in storage and ancillary services technologies. Storage capacity is expected to grow to approximately 250 GW in the US by 2040. ii) Case study. Situation: We recognize the need to decarbonize the power sector and we are taking strategic steps to support this with increased renewable energy development and conversion of coal to gas. We also recognize the associated problems of renewable energy intermittency. Task: To leverage this opportunity and combat the challenges of renewable energy intermittency, we continue to invest in battery storage. Since 2020, we have maintained our sustainability goal to "Develop new renewable projects that support customer sustainability goals to achieve both long-term power price affordability and carbon reductions". Action: In 2020, we launched WindCharger, a "first of its kind" battery storage project (10 MW/20 MWh) that uses Tesla lithium-ion batteries. The project stores energy produced by our nearby Summerview II wind facility and discharges electricity onto the Alberta grid during system supply shortages. This project received co-funding support from Emissions Reduction Alberta. The total cost of the project to TransAlta was between $7 million and $8 million. In 2021, we agreed to provide renewable solar electricity supported with a battery energy storage system to BHP through the construction of the Northern Goldfields Solar Project in Australia. This project will support BHP in meeting its emissions reduction targets and delivering lower carbon, sustainable nickel to its customers. In 2021, we also established a new technology team focused on emerging technologies. Our work in this area led to strategic investments in the first quarter of 2022 (see C-CE9.6). Results: TransAlta has helped our customers by reliably delivering and operating renewable and storage projects and on-site generation so that customers receive the energy they require, and environmental outcomes aligned with their ESG commitments.
Operations	Yes	i) Description of how our strategy for operations has been influenced by climate-related risks and opportunities: The impact of climate-related policy intervention in Alberta, Canada (mandatory timelines on coal plant shutdowns) and carbon pricing (currently $40 per tonne CO2e) has led to our strategy to convert a significant amount of our Alberta coal fleet to natural gas and retire the remaining units. ii) Case study. Situation: In 2014, TransAlta established its first goal to reduce GHG emissions from coal operations, and in 2016 we signed a Memorandum of Understanding with the Alberta Government to advance coal to gas conversions. Task: Since 2018, we have maintained the target to provide "No further coal generation by the end of 2025 with 100 per cent of our owned net generation capacity to be from renewables and gas". In addition, our Clean Energy Investment Plan announced in September 2019 has supported capital allocation and expenditures towards conversion of coal facilities to gas. Action: In 2021, we achieved an environmental performance milestone in our journey to grow our clean electricity fleet with the completion of our coal-to-gas conversions in Canada. To date, we have retired 4,064 MW of coal-fired generation capacity since 2018 while converting 1,659 MW to natural gas. Thus far, we have retired or converted 90 per cent of our existing coal fleet and will retire the remaining 10 per cent by 2025. Results: We have taken significant steps to reduce our carbon footprint. In 2021, we achieved a total reduction of 61 per cent compared to our 2015 emission levels. Overall, our converted natural gas units generate nearly 50 per cent fewer CO2 emissions compared to coal. Repurposing the facilities rather than decommissioning them reduces the cost and emissions associated with new construction and aligns with the UN SDGs, specifically "Goal 9: Industry, Innovation and Infrastructure." The completed conversions and the closure of the Highvale coal mine also contributes to the goals of the Powering Past Coal Alliance, which TransAlta joined in November 2021 at COP26.

C3.4

(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Capital expenditures Capital allocation	i) Case study of how climate-related risks and opportunities have influenced our financial planning: Capital allocation and expenditure. Situation: TransAlta's enhanced focus on renewable generation and storage solutions for customers is driven largely by both climate-related risks (need to shift away from GHG intensive coal, associated carbon pricing impacts, societal shifts, and expectations) and opportunities (conversion of coal to gas significantly reduces GHG, while supporting a broader lower carbon transition, and continued growth in renewable energy supports a low carbon future and supports our customers' sustainability goals). Task: Our Clean Energy Investment Plan, announced in 2019, included converting our existing Alberta coal assets to natural gas and advancing our leadership position in renewable electricity. Despite significantly reducing our carbon footprint (we have retired 4,064 MW of coal-fired generation capacity since 2018 while converting 1,659 MW to natural gas), we recognized the need to accelerate growth into customer-centred renewables and storage. Action: In September 2021, we announced our Clean Electricity Growth Plan which will see the Company execute on 2 GW of renewables growth by 2025. By the end of 2025, we expect 70 per cent of our EBITDA to be derived from renewables. Results: The evolution of our decarbonization targets – from phasing out coal to expanding renewable electricity generation – has shaped our Company to become a leader in clean energy in North America. Our investments demonstrate our commitment to a cleaner future, and we are on track to enable a two-fold increase in renewables by 2030. ii) Time horizon covered by the financial planning: We targeted a capital investment of $3 billion by the end of 2025. The new assets, once fully operational are targeted to deliver incremental average annual EBITDA of $250 million.

C3.5

(C3.5) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's transition to a 1.5°C world?

Yes

C3.5a

(C3.5a) Quantify the percentage share of your spending/revenue that is aligned with your organization's transition to a 1.5°C world.

Financial Metric
Other, please specify (EBITDA)

Percentage share of selected financial metric aligned with a 1.5°C world in the reporting year (%)
85

Percentage share of selected financial metric planned to align with a 1.5°C world in 2025 (%)
100

Percentage share of selected financial metric planned to align with a 1.5°C world in 2030 (%)
100

Describe the methodology used to identify spending/revenue that is aligned with a 1.5°C world
i) EBITDA aligned with a 1.5°C world: By the end of 2025 we will have achieved a 100 per cent portfolio mix of renewables and natural gas with 70 per cent of EBITDA attributable to renewables. One of our major strategic goals is to be coal-free in Canada by the end of 2021 with the remaining US unit retiring by 2025. In 2021, we achieved full phase-out of coal in Canada. Thus far, we have retired or converted 90 per cent of our existing coal fleet and will retire the remaining 10 per cent by 2025. In addition, in 2021, as part of our Clean Electricity Growth Plan we set the goal to achieve 70 per cent EBITDA from renewables and storage by the end of 2025. TransAlta's 2021 climate scenario analysis confirmed that the IEA's Net Zero by 2050 (NZE2050) scenario notes the requirement for substantial increases in renewables generation, therefore we have included EBITDA from renewables generation as aligned with a 1.5°C path. Further, the NZE2050 scenario recognizes that natural gas generation will provide a declining but critical portion of power in the transition to beyond 2030 while renewable generation grows rapidly and technologies like energy storage, hydrogen, and CCUS become integrated into the electricity system. This means that natural gas assets still play a role for a smooth and efficient energy transition. Therefore, to 2030, we have accounted as 'aligned with a 1.5°C world' as our growing proportion of EBITDA generated from renewable sources (hydro, wind and solar) and our declining proportion of natural gas and excluded EBITDA from coal. ii) Description of methodology to calculate percentage of EBITDA aligned with a 1.5°C world: In the reporting year (2021), we calculated the percentage of 'adjusted EBITDA' figures for renewables and natural gas ($1,078 million) compared against the Company-wide total ($1,263 million), resulting in 85 per cent (figures disclosed on page M21 of TransAlta's 2021 Integrated Report). The 2025 and 2030 EBITDA estimates were calculated assuming the achievement of our goal -100 per cent portfolio mix of renewables and natural gas.

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?
Absolute target

C4.1a

(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

Target reference number
Abs 1

Year target was set
2021

Target coverage
Company-wide

Scope(s)
Scope 1
Scope 2

Scope 2 accounting method
Location-based

Scope 3 category(ies)
<Not Applicable>

Base year
2015

Base year Scope 1 emissions covered by target (metric tons CO2e)
32041425

Base year Scope 2 emissions covered by target (metric tons CO2e)
186390

Base year Scope 3 emissions covered by target (metric tons CO2e)
<Not Applicable>

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)
32227815

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1
100

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2
100

Base year Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)
<Not Applicable>

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes
100

Target year
2026

Targeted reduction from base year (%)
75

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]
8056953.75

Scope 1 emissions in reporting year covered by target (metric tons CO2e)
12448504

Scope 2 emissions in reporting year covered by target (metric tons CO2e)
57229

Scope 3 emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)
12505733

% of target achieved relative to base year [auto-calculated]
81.5944529076307

Target status in reporting year
New

Is this a science-based target?
Yes, we consider this a science-based target, and the target is currently being reviewed by the Science Based Targets initiative

Target ambition
1.5°C aligned

Please explain target coverage and identify any exclusions
In December 2021, TransAlta approved a more stringent climate-related target to reduce 75 per cent of our scope 1 and 2 GHG emissions by 2026 from a 2015 base year. This target accounts for 100 per cent of all our Company-wide scope 1 and 2 GHG emissions. We estimate that this is in line with limiting global warming to 1.5°C and, in December 2021, committed to setting a science-based emissions reduction target, specifically using the sectoral decarbonization approach for electric utilities, through the Science Based Targets initiative (SBTi). TransAlta was the first publicly traded electricity company in Canada to commit to setting a science-based emissions target. This goal is aligned with Goal 13, Climate Action: UN Sustainable Development Goals.

Plan for achieving target, and progress made to the end of the reporting year
Our new target is a function of our new growth strategy. By focusing on growing our contracted renewables assets, we are growing our business and not our emissions. This type of growth, coupled with coal-to-gas conversions that cut emissions from our thermal assets, and efficient on-site cogeneration, creates an emissions pathway for our Company that delivers substantial reductions over the next five years. One of our major strategic goals is to be coal-free in Canada by the end of 2021 with our sole remaining US unit retiring by 2025. In 2021, we achieved full phase-out of coal in Canada. This means TransAlta's thermal coal facilities in Alberta have been retired or fully transitioned to a 100 per cent natural gas operation. The Highvale coal mine was closed. In the US, Centralia Unit 1 retired on Dec. 31, 2020, and the remaining unit is set to retire on Dec. 31, 2025. Thus far, we have retired or converted 90 per cent of our existing coal fleet and will retire the remaining 10 per cent by 2025. Our investments and growth strategy is substantially increasing our portfolio of renewable energy-generating assets. In September 2021, we announced our Clean Electricity Growth Plan which will see the Company execute on 2 GW of renewables growth by 2025. By the end of 2025, we expect 70 per cent of our EBITDA to be derived from renewables. In addition, we continue to develop new renewable projects that support our customers' sustainability goals to achieve both long-term power price affordability and carbon reductions. In 2020, we developed WindCharger, a "first of its kind" battery storage project; in 2021, we agreed to provide renewable solar electricity supported with a battery energy storage system to BHP through the construction of the Northern Goldfields Solar Project in Western Australia. In 2021, we also entered into long-term PPAs for the off take of 100 MW from our Garden Plain wind project in Alberta and 100 per cent of our 300 MW White Rock East and White Rock West wind projects in Oklahoma.

List the emissions reduction initiatives which contributed most to achieving this target
<Not Applicable>

Target reference number
Abs 2

Year target was set
2015

Target coverage
Company-wide

Scope(s)
Scope 1
Scope 2

Scope 2 accounting method
Location-based

Scope 3 category(ies)
<Not Applicable>

Base year
2015

Base year Scope 1 emissions covered by target (metric tons CO2e)
32041425

Base year Scope 2 emissions covered by target (metric tons CO2e)
186390

Base year Scope 3 emissions covered by target (metric tons CO2e)
<Not Applicable>

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)
32227815

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1
100

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2
100

Base year Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)
<Not Applicable>

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes
100

Target year
2030

Targeted reduction from base year (%)
61.11

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]
12533397.2535

Scope 1 emissions in reporting year covered by target (metric tons CO2e)
12448504

Scope 2 emissions in reporting year covered by target (metric tons CO2e)
57229

Scope 3 emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)
12505733

% of target achieved relative to base year [auto-calculated]
100.140467486046

Target status in reporting year
Achieved

Is this a science-based target?
No, but we are reporting another target that is science-based

Target ambition
<Not Applicable>

Please explain target coverage and identify any exclusions
In 2015, we set the climate-related target to "By 2030, achieve company-wide GHG reductions of 60 per cent below 2015 levels, in line with a commitment to the UN SDGs and prevention of 2ºC of global warming". This target is aligned with Goal 13, Climate Action: UN Sustainable Development Goals and it was achieved ahead of schedule at YE2021.

Plan for achieving target, and progress made to the end of the reporting year
<Not Applicable>

List the emissions reduction initiatives which contributed most to achieving this target
TransAlta's strategy is focused on the operation of our existing assets (wind, hydro, solar, gas, storage and coal), the phase-out of coal-fired electricity generation and the development of renewable energy and storage projects. To date, we have retired 4,064 MW of coal-fired generation capacity since 2018 while converting 1,659 MW to natural gas. Overall, our converted natural gas units generate nearly 50 per cent fewer CO2 emissions compared to coal. Repurposing the facilities rather than decommissioning them reduces the cost and emissions associated with new construction and aligns with the UN SDGs, specifically "Goal 9: Industry, Innovation and Infrastructure." The completed conversions and the closure of the Highvale coal mine also contributes to the goals of the Powering Past Coal Alliance, which TransAlta joined in November 2021 at COP26. In addition, from 2000 to 2021, we grew our nameplate renewables capacity from approximately 900 MW to over 2,800 MW. Thus far, our Company has achieved a 29 million tonne annual GHG emission reduction from 2005 levels. On a percentage basis, this reduction already exceeds the 2030 national emissions targets in Canada, the US and Australia where we operate. Since 2015, we have reduced our annual emissions by 19.7 million tonnes of CO2e or 61 per cent, putting us on track to achieve our new 2026 target. In that sense, we are already ahead of the ambitious national efforts in our home markets. That said, we recognize that decarbonizing the electricity sector is a key pillar of global climate efforts because electrification enables emission reductions in other sectors, such as transportation. This means we have to continually work to raise our level of ambition as we did last year by setting our carbon neutrality target for 2050 and we did this reporting year by enhancing and accelerating our near-term reduction target.

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?
Other climate-related target(s)

C4.2b

(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.

Target reference number
Oth 1

Year target was set
2017

Target coverage
Company-wide

Target type: absolute or intensity
Absolute

Target type: category & Metric (target numerator if reporting an intensity target)

Fossil fuel reduction target	Other, please specify (Installed Coal Capacity (MW))

Target denominator (intensity targets only)
<Not Applicable>

Base year
2017

Figure or percentage in base year
4653

Target year
2026

Figure or percentage in target year
0

Figure or percentage in reporting year
1472

% of target achieved relative to base year [auto-calculated]
68.3644960240705

Target status in reporting year
Underway

Is this target part of an emissions target?
TransAlta's target is to achieve "No further coal generation by the end of 2025 with 100 per cent of our owned net generation capacity to be from renewables and gas". This target also builds into our 2026 GHG emission reduction target due to the nature of coal power generation being GHG emissions intensive.

Is this target part of an overarching initiative?
Science Based targets initiative - other

Please explain target coverage and identify any exclusions
As noted previously, in December 2021 TransAlta approved a more stringent climate-related target to reduce 75 per cent of our scope 1 and 2 GHG emissions by 2026 from a 2015 base year. We estimate that this is in line with limiting global warming to 1.5°C and, in December 2021, committed to setting a science-based emissions reduction target, specifically using the sectoral decarbonization approach for electric utilities, through the Science Based Targets initiative (SBTi). This target is aligned with Goal 13, Climate Action: UN Sustainable Development Goals. Our GHG emissions reduction target is being verified by the SBTi in 2022. This target is also one of our 16 strategic sustainable development targets, which we announce annually in our Integrated Report.

Plan for achieving target, and progress made to the end of the reporting year
One of our major climate-related strategic goals is to be coal-free in Canada by the end of 2021 with the remaining US unit retiring by 2025. In 2021, we achieved full phase-out of coal in Canada. This means TransAlta's thermal facilities in Alberta have been fully transitioned to a 100 per cent natural gas operation. The Highvale coal mine was closed. In the US, Centralia Unit 1 retired on Dec. 31, 2020, and the remaining unit is set to retire on Dec. 31, 2025. Thus far, we have retired or converted 90 per cent of our existing coal fleet and will retire the remaining 10 per cent by 2025.

List the actions which contributed most to achieving this target
<Not Applicable>

Target reference number
Oth 2

Year target was set
2021

Target coverage
Company-wide

Target type: absolute or intensity
Absolute

Target type: category & Metric (target numerator if reporting an intensity target)

Renewable fuel production	Other, please specify (Installed Renewable Capacity (MW))

Target denominator (intensity targets only)
<Not Applicable>

Base year
2021

Figure or percentage in base year
2831

Target year
2026

Figure or percentage in target year
4831

Figure or percentage in reporting year
2831

% of target achieved relative to base year [auto-calculated]
0

Target status in reporting year
New

Is this target part of an emissions target?
Our new GHG emissions reduction target is a function of our new growth strategy in renewable electricity generation. By focusing on growing our contracted renewables assets, we are growing our business and not our emissions. This type of growth, coupled with coal-to-gas conversions that cut emissions from our thermal assets, and efficient on-site cogeneration, creates an emissions pathway for our Company that delivers substantial reductions over the next five years.

Is this target part of an overarching initiative?
Science Based targets initiative - other

Please explain target coverage and identify any exclusions
As part of our company-wide Clean Electricity Growth Plan, our corporate goal is to execute on 2 GW of renewables growth by 2025. In 2021, the Company announced 600 MW of new build projects and asset acquisitions and has 240 MW in advanced stage development. In addition, the current growth pipeline has a potential capacity ranging from 2,085 MW to 2,685 MW from projects in the early stages of development.

Plan for achieving target, and progress made to the end of the reporting year
In September 2021, we announced our Clean Electricity Growth Plan which will see the Company execute on 2 GW of renewables growth by 2025. By the end of 2025, we expect 70 per cent of our EBITDA to be derived from renewables.

List the actions which contributed most to achieving this target
<Not Applicable>

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.
Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	16	0
To be implemented*	5	90072
Implementation commenced*	5	6389951
Implemented*	4	5813838
Not to be implemented	1	0

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative category & Initiative type

Other, please specify	Other, please specify (Coal to gas conversions)

Estimated annual CO2e savings (metric tonnes CO2e)
5813838

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 1
Scope 2 (location-based)

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
0

Investment required (unit currency – as specified in C0.4)
299000000

Payback period
1-3 years

Estimated lifetime of the initiative
11-15 years

Comment
One of our major strategic goals is to be coal-free in Canada by the end of 2021 with the remaining US unit retiring by 2025. In 2021, we achieved full phase-out of coal in Canada. This means TransAlta's thermal facilities in Alberta were retired or have been fully transitioned to a 100 per cent natural gas operation: Sundance Unit 5 was retired, and Keephills Unit 2, Keephills Unit 3 and Sundance Unit 6 were converted to natural gas. The Highvale coal mine was closed. In the US, Centralia Unit 1 retired on Dec. 31, 2020, and the remaining unit is set to retire on Dec. 31, 2025. Thus far, we have retired or converted 90 per cent of our existing coal fleet and will retire the remaining 10 per cent by 2025. Overall, the converted units generate nearly 50 per cent fewer CO2 emissions fuelled by natural gas compared to coal. Historically, we have implemented fuel switching at our facilities through cofiring with gas, but these efficiencies have largely now been optimized and further efficiencies can only be gained through facility conversion.

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Internal price on carbon	We assess internal projects on a case-by-case basis and at a carbon price of $40 to $170 tonne CO2e. Carbon costs in Alberta were $40/tonne CO2e in 2021 and $50 in 2022 as per Canadian federal rules. Starting in 2023, carbon pricing will increase by $15 annually until 2030 with a $170/tonne price.
Dedicated budget for other emissions reduction activities	TransAlta is a leader in renewable energy development. We have grown our global nameplate renewable energy capacity from approximately 900 MW in 2000 to over 2,800 MW in 2021. We continue to seek opportunities to grow renewable energy. In 2021, we announced our Clean Electricity Growth Plan which will see the Company execute on 2 GW of renewables growth by 2025. The plan has a targeted capital investment of $3 billion by the end of 2025. The plan will largely be funded from current cash balances, cash generated from operations, and asset-level financing. Once fully operational, the new assets are targeted to deliver incremental average annual EBITDA of $250 million.
Dedicated budget for other emissions reduction activities	One of our major strategic goals is to be coal-free. In Canada, we completed our coal transition at the end of 2021. In the United States, our Centralia Unit 1 retired on Dec. 31, 2020, and the remaining unit is set to retire on Dec. 31, 2025. As part of our Clean Energy Investment Plan announced in 2019, we spent $104 million to convert three of our Alberta thermal fleet units to natural gas (2021 Integrated Report, page M5). These coal-to-gas conversions repurposed and repositioned our fleet to a cleaner gas-fired fleet while generating attractive returns by leveraging TransAlta's existing infrastructure. This means TransAlta's thermal coal facilities in Alberta have been retired or fully transitioned to a 100 per cent natural gas operation. Our Highvale coal mine in Alberta was closed. Overall, we have retired or converted 90 per cent of our existing coal fleet and will retire the remaining 10 per cent by 2025.
Compliance with regulatory requirements/standards	Changes in current environmental legislation do have, and will continue to have, an impact upon our operations and our business in Canada, the US and Australia (e.g., Technology Innovation and Emission Reduction in Alberta). These changes to regulations may affect our earnings by reducing the operating life of generating facilities and imposing additional costs on the generation of electricity through such measures as emission caps or taxes, requiring additional capital investments in emission abatement technology, or requiring us to invest in offset credits. It is anticipated that these compliance costs will increase as governments develop more stringent climate policies. We manage this environmental compliance risk through investing in renewable energy projects, such as wind, solar and hydro generation, and storage technologies.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?
Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.

Level of aggregation
Product or service

Taxonomy used to classify product(s) or service(s) as low-carbon
Other, please specify (Our renewable generation qualifies as carbon offsets or RECs under different offset frameworks; hence these are low-carbon facilities / products. They are very close to zero emission facilities from a scope 1 and 2 GHG accounting perspective.)

Type of product(s) or service(s)

Power	Other, please specify (Renewable electricity (hydro, wind, and solar))

Description of product(s) or service(s)
One of TransAlta's 16 sustainability targets is to "Develop new renewable projects that support customer sustainability goals to achieve both long-term power price affordability and carbon reductions". We continue to develop renewable energy facilities to support customers achieving their sustainability goals and targets, such as 100 per cent renewable power targets and/or GHG reduction targets. Production from renewable electricity in 2021 resulted in the avoidance of approximately 2.6 million tonnes of CO2e for our customers. In 2021, TransAlta earned $688 million in revenue from renewable energy generation. Revenue generated from low-carbon product(s) or service(s) as percentage of total revenue in the reporting year ($2,721 million) was calculated as follows: $688/$2,721 = 25 per cent.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)
No

Methodology used to calculate avoided emissions
<Not Applicable>

Life cycle stage(s) covered for the low-carbon product(s) or services(s)
<Not Applicable>

Functional unit used
<Not Applicable>

Reference product/service or baseline scenario used
<Not Applicable>

Life cycle stage(s) covered for the reference product/service or baseline scenario
<Not Applicable>

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario
<Not Applicable>

Explain your calculation of avoided emissions, including any assumptions
<Not Applicable>

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year
25

Level of aggregation
Group of products or services

Taxonomy used to classify product(s) or service(s) as low-carbon
Other, please specify (EcoLogo, TIER, Alberta Carbon Offset Protocol, Massachusetts SRECs)

Type of product(s) or service(s)

Other	Other, please specify (Environmental attributes that we have the ability to generate, trade, purchase, and sell, including Emission Performance Credits (EPCs), Alberta carbon offsets, Renewable Energy Credits (RECs) and emission offsets.)

Description of product(s) or service(s)
Another way TransAlta can contribute to our customers' sustainability goals is through the use of environmental attributes, which we have the ability to generate, trade, purchase, and sell, include Emission Performance Credits (EPCs), Alberta carbon offsets, Renewable Energy Credits (RECs) and emission offsets. Alberta carbon offsets can be voluntarily generated by Alberta projects, which meet Alberta carbon offset system qualification protocols. Our Alberta wind facilities generate Alberta carbon offset credits. RECs are produced from our renewable energy assets (wind, hydro, and solar) and can be traded in voluntary carbon markets or sold to customers. RECs can be used to meet regulatory requirements when a target for renewable energy generation is set by a jurisdiction or can be used to voluntarily achieve clean electricity procurement goals. Emissions offsets are produced from voluntary projects that reduce emissions in sectors of the economy not covered by carbon reduction regulations. Our customers can use environmental attributes to lower compliance costs attributed to carbon policies or renewable portfolio standards. Further, environmental attributes can help achieve voluntary corporate sustainability or carbon reduction goals. There is a strict qualification process and retirement / audit process to ensure EcoLogo RECs, EPCs, Solar Renewable Electricity Credits, and carbon offsets are not double sold. 2021 environmental attributes revenue was $28 million.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)
No

Methodology used to calculate avoided emissions
<Not Applicable>

Life cycle stage(s) covered for the low-carbon product(s) or services(s)
<Not Applicable>

Functional unit used
<Not Applicable>

Reference product/service or baseline scenario used
<Not Applicable>

Life cycle stage(s) covered for the reference product/service or baseline scenario
<Not Applicable>

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario
<Not Applicable>

Explain your calculation of avoided emissions, including any assumptions
<Not Applicable>

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year
1

C-EU4.6

(C-EU4.6) Describe your organization's efforts to reduce methane emissions from your activities.

i) Summary of efforts to reduce methane emissions: TransAlta's strategy is focused on the operation of our existing assets (wind, hydro, solar, gas, storage and coal), the phase-out of coal-fired electricity generation and the development of renewable energy and storage projects, and low-carbon natural gas generation.

ii) Case study: Ceasing coal-fired electricity generation, resulting in reduction of methane emissions. Situation: Since 2018, we have maintained the target to provide "No further coal generation by the end of 2025 with 100 per cent of our owned net generation capacity to be from renewables and gas". Task: Our Clean Energy Investment Plan, announced in 2019, included converting or retiring our existing Alberta coal assets to natural gas and advancing our leadership position in renewable electricity. In September 2021, we announced a Clean Electricity Growth Plan that includes the delivery of 2 GW of incremental renewable capacity with a targeted capital investment of $3 billion by the end of 2025. These initiatives will result in methane or CH4 emission reduction. Operation of renewable energy facilities has close to zero GHG emissions and displaces higher carbon generation. Action: In 2021, we completed our coal-to-gas conversions in Canada. Our Centralia coal facility in the US will be retired by the end of 2025. Thus far, we have retired or converted 90 per cent of our existing coal fleet and will retire the remaining 10 per cent by 2025. Our Alberta coal-to-gas conversion, completed in 2021, will reduce GHG emissions from these facilities by close to 60 per cent. Although methane or CH4 specific emissions may increase or hold steady at these facilities, the benefit of the reduced CO2 is substantial. Conversion of our Windsor and Ottawa plants in Ontario to peaking power plant facilities is a good example of TransAlta reducing methane emissions. Results: Our overall methane emissions were 25,000 tonnes CO2e in 2021, which is less than 1 per cent of our total CO2e emissions. To date, our company-wide methane emissions have reduced 51 per cent from 51,000 tonnes CO2e in 2019. The gas supplied to our Alberta coal-to-gas facilities will be some of the lowest carbon natural gas in the world as Alberta and Canada move forward to meet the federal government's objective of reducing oil and gas methane emissions by at least 75 percent below 2012 levels by 2030.

C5. Emissions methodology

C5.1

(C5.1) Is this your first year of reporting emissions data to CDP?

No

C5.1a

(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?

Row 1

Has there been a structural change?

No

Name of organization(s) acquired, divested from, or merged with

<Not Applicable>

Details of structural change(s), including completion dates

<Not Applicable>

C5.1b

(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?

	Change(s) in methodology, boundary, and/or reporting year definition?	Details of methodology, boundary, and/or reporting year definition change(s)
Row 1	No	<Not Applicable>

C5.2

(C5.2) Provide your base year and base year emissions.

Scope 1

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
32041425

Comment
Our base year is aligned with the Paris Climate Agreement.

Scope 2 (location-based)

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
186390

Comment
Our base year is aligned with the Paris Climate Agreement.

Scope 2 (market-based)

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
0

Comment
0

Scope 3 category 1: Purchased goods and services

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
503607

Comment
Our accounting group provided our annual spend analysis in 2015 and the SD team was able to further categorize these by sector of purchase and enter these values in to the Quantis Scope 3 Evaluator.

Scope 3 category 2: Capital goods

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
125458

Comment
Entered TransAlta capital good expenditures, based on sector of purchase, in to the GHG Protocol and Quantis Scope 3 calculator to derive scope 3 emissions from capital goods.

Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
343091

Comment
Used Alberta Environment emissions factors for extraction and production of gasoline, diesel, natural gas, propane and kerosene. Applied emission intensity (mining emissions/coal combusted) from our own coal mine in Alberta to derive coal extraction emissions for our US coal operations.

Scope 3 category 4: Upstream transportation and distribution

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
84207

Comment
Coal is transported in diesel locomotive freight trains from Montana and Wyoming to our Centralia coal power plant in Washington. Multiplied: average diesel usage per round trip * total trips (223 in 2015) * emission factors, to calculate scope 3 emissions from upstream transport of coal. Natural gas is distributed in pipelines. We have tie-in points at all of our operations. Some fugitive emissions are associated with natural gas transportation. We consider these to be negligible. Emissions from extraction and production of natural gas are calculated in 'Fuel and energy related activities'. Diesel usage from locomotives (delivering coal) was multiplied by mobile combustion source diesel rail emission factors (taken from Environment Canada National Inventory Report – EPA emission factors not clear)

Scope 3 category 5: Waste generated in operations

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
2954

Comment
As part of our annual sustainability reporting, we track all environmental expenditures, including waste management expenditures. The total was applied in the Scope 3 evaluator GHG Protocol Quantis Scope 3 Evaluator to derive at an estimate of our waste emissions.

Scope 3 category 6: Business travel

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
599

Comment
Travel provider methodology. Sourced from GRASP Reporting. 17. GREEN PORTFOLIO FRAMEWORK ADDITIONAL RESOURCES - GHG FACTORS Common GHG conversion factors for determining GHG emissions performance based on energy use & travel. Air travel1 Short haul (<281 miles): 0.2897 kg CO2/passenger mile Medium haul (281-994 miles): 0.2028 kg CO2/passenger mile Long haul (>994 miles): 0.1770 kg CO2/passenger mile *disregard class of service Rail2 Intercity rail (Amtrak) 0.1909 kg CO2/ passenger mile.

Scope 3 category 7: Employee commuting

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
2975

Comment
GHG Protocol Quantis Scope 3 tool takes total employee numbers and applies a methodology. Company size 1000-2500 employees.

Scope 3 category 8: Upstream leased assets

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
0

Comment
Not relevant, explanation provided. TransAlta accounts for emissions from leased assets in its scope 2 emissions.

Scope 3 category 9: Downstream transportation and distribution

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
0

Comment
A review on the emissions quantification methodology was conducted in 2022. As such, it has been identified that the by-product, ash, generated from coal plant, which is sold as a raw material in cement production will be included in Scope 3 Category 9. This will focus on the transportation from the coal plant to the supplier site.

Scope 3 category 10: Processing of sold products

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
0

Comment
A review on the emissions quantification methodology was conducted in 2022. As such, it has been identified that the by-product, ash, generated from coal plant, which is sold as a raw material in cement production will be included in Scope 3 Category 10. This will focus on the emissions generated in cement production by the supplier.

Scope 3 category 11: Use of sold products

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
0

Comment
Not applicable, no additional GHG emissions from the use of electricity.

Scope 3 category 12: End of life treatment of sold products

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
0

Comment
There is no end-of-life treatment required for our primary products: wholesale and retail electricity.

Scope 3 category 13: Downstream leased assets

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
0

Comment
TransAlta did not have any applicable downstream leased assets in operation in 2015.

Scope 3 category 14: Franchises

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
0

Comment
TransAlta had no franchises in 2015.

Scope 3 category 15: Investments

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
5419578

Comment
GHG emissions from sites that we have a financial ownership percentage, but are not the operator. Data was not available for the Sheerness coal facility; hence this number is an estimate based on average emission over the past five years. Specified Gas Emitters Regulation methodology (AB carbon markets) was adopted.

Scope 3: Other (upstream)

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
0

Comment
No additional upstream exposure.

Scope 3: Other (downstream)

Base year start
January 1 2015

Base year end
December 31 2015

Base year emissions (metric tons CO2e)
0

Comment
No additional downstream exposure.

C5.3

(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

Australia - National Greenhouse and Energy Reporting Act
Environment Canada, Sulphur hexafluoride (SF6) Emission Estimation and Reporting Protocol for Electric Utilities
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)
US EPA Center for Corporate Climate Leadership: Direct Emissions from Stationary Combustion Sources
Other, please specify (Government of Alberta (CCIR/TIER) and Ontario (390/18))

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)
12448504

Start date
January 1 2021

End date
December 31 2021

Comment
In 2021, our GHGs emissions (scopes 1 and 2) were estimated to be 12.5 million tonnes as a result of normal operating activities. Compared to 2020, this represents a reduction of approximately 24 per cent or 3.9 million tonnes CO2e. Reductions in GHG emissions were primarily due to shutdowns during coal-to-gas conversions and coal unit retirements. Because we sell the environmental attributes generated from our renewable energy facilities, we do not subtract this amount from our total emissions, but it should be noted that TransAlta's customers are reporting GHG reductions using our renewable energy assets, projects and operations.

Past year 1

Gross global Scope 1 emissions (metric tons CO2e)
16278234

Start date
January 1 2020

End date
December 31 2020

Comment
0

Past year 2

Gross global Scope 1 emissions (metric tons CO2e)
20454144

Start date
January 1 2019

End date
December 31 2019

Comment
Minor adjustments were made to historical 2019 GHG emissions data primarily from our wind & solar, hydro, and natural gas business segments as a result of adjusted historical energy use volumes. A minor adjustment was made to 2019 SF6 emissions as a result of an internal discrepancy at our Sarnia facility. An SF6 leak from late in 2019 was not reported in our system until 2020.

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based
We are reporting a Scope 2, location-based figure

Scope 2, market-based
We have operations where we are able to access electricity supplier emission factors or residual emissions factors, but are unable to report a Scope 2, market-based figure

Comment
0

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Reporting year

Scope 2, location-based
57229

Scope 2, market-based (if applicable)
<Not Applicable>

Start date
January 1 2021

End date
December 31 2021

Comment
0

Past year 1

Scope 2, location-based
101656

Scope 2, market-based (if applicable)
<Not Applicable>

Start date
January 1 2020

End date
December 31 2020

Comment
0

Past year 2

Scope 2, location-based
146972

Scope 2, market-based (if applicable)
<Not Applicable>

Start date
January 1 2019

End date
December 31 2019

Comment
Minor adjustments were made to historical 2019 GHG emissions data primarily from our wind & solar, hydro, and natural gas business segments as a result of adjusted historical energy use volumes.

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?
No

C6.5

(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
186811

Emissions calculation methodology
Spend-based method
Other, please specify (GHG Protocol Quantis Scope 3 Evaluator)

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
TransAlta uses our accounting and supply chain database to provide annual spend data for all company divisions. Data (purchases in USD, basic prices) comes from the supplier or service provider and is categorized by 'Broad sector of purchase' per 'Purchase type' using the GHG Protocol Quantis Scope 3 Evaluator.

Capital goods

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
60089

Emissions calculation methodology
Spend-based method
Other, please specify (GHG Protocol Quantis Scope 3 Evaluator)

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
TransAlta uses our accounting and supply chain database to provide annual spend data for all company divisions. Data (purchases in USD, basic prices) comes from the supplier or service provider and is categorized by 'Broad sector of purchase' per 'Purchase type' using the GHG Protocol Quantis Scope 3 Evaluator.

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
462022

Emissions calculation methodology
Fuel-based method
Other, please specify

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
TransAlta consumes a variety of fuels within their operated facilities around the world including coal, natural gas, diesel, oils, greases, propane, gasoline, and kerosene. We purchase natural gas for our gas power generation facilities. Gas extraction and production is included in this calculation. In 2021, emissions from coal extraction in Alberta were accounted for in scope 1, as we operated the mine adjacent to our coal facilities. In 2021, we achieved full phase-out of coal in Canada. This means TransAlta's thermal facilities in Alberta have been fully transitioned to a 100 per cent natural gas operation. The Highvale coal mine was closed. The extraction of coal combustion at our Centralia plant is also included in this calculation as we rely on coal deliveries at this plant. Centralia Unit 1 retired on Dec. 31, 2020, and the remaining unit is set to retire on Dec. 31, 2025. This calculation also includes diesel extraction and production. Diesel is occasionally used for combustion in our plants. We also use diesel and gasoline for transportation requirements and propane and kerosene for heating. These have also been included. Emissions factors for extraction and production of gasoline, diesel, natural gas, propane, and kerosene derived from Canada Fuel LCA Model Methodology 2020. We applied emission intensity (mining emissions/coal combustion) from our own coal mine in Alberta to derive coal extraction emissions for our US coal operations.

Upstream transportation and distribution

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
49288

Emissions calculation methodology
Distance-based method
Other, please specify (The actual quantification methodology used to calculate emissions related to rail transportation was completed using the Canadian National Railway (CN Rail) Carbon Calculator online tool.)

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
Coal is transported in diesel locomotive freight trains from Montana and Wyoming to our Centralia coal power plant in Washington State, in the US. CO2e is calculated using a distance-based method built into an online carbon calculator for rail journey based on publicly available rail company data. We track the distance, number of train cars and shipment weights in order to help determine CO2e. Different weights are applied for the return journey, empty cars, hence the weight of the car only. Natural gas is distributed in pipelines. We have tie-in points at all of our operations. Some fugitive emissions are associated with natural gas transportation. We consider these to be negligible. Emissions from extraction and production of natural gas are calculated in Category 3: Fuel & Energy Related Activities.

Waste generated in operations

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
5148

Emissions calculation methodology
Average data method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
100

Please explain
As part of our annual sustainability reporting, we track our total waste generation (tonnes equivalent), waste to landfill (tonne eq.) and waste recycled (tonne eq.), which received limited assurance in 2021. CO2e is calculated using the average-data method as per the GHG Protocol Technical Guidance for Calculating Scope 3 Emissions. Emission factors applied an average of mixed materials, following guidance from the US Environmental Protection Agency, Emissions Factors for GHG Inventories (April 2022).

Business travel

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
99

Emissions calculation methodology
Distance-based method
Other, please specify (Travel provider methodology uses GraspDATA from Grasp Technologies, a web-based reporting tool for travel companies. Emissions calculation is distance-based (kilometres).)

Percentage of emissions calculated using data obtained from suppliers or value chain partners
50

Please explain
Our travel provider provided 2021 data (49,595.89 CO2 Kgs), which we believe represents 50 per cent of our emissions from the transportation of employees for business-related activities (air travel). Hence, we conservatively doubled this figure to account for internally booked flights that are outside of our travel provider database. Emissions calculation is distance-based (kilometres) for: Short Haul - less than 452km, Medium Haul - between 452km and 1600km., and Long Haul - greater than 1600km.

Employee commuting

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
4551

Emissions calculation methodology
Distance-based method
Other, please specify (An internal survey was conducted in 2020 to record the commute of TransAlta employees.)

Percentage of emissions calculated using data obtained from suppliers or value chain partners
5

Please explain
The input data included distance travelled (distance-based method), mode of transportation, and updated emission factors as per the US Environmental Protection Agency, Emissions Factors for GHG Inventories (April 2022) for Scope 3 Category 6: Business Travel and Category 7: Employee Commuting. Potential commute changes during summer and winter were accounted for. Our 2021 figures were calculated assuming routines of employees commuting to and from work were kept from 2020 as a result of public health and workplace measures maintained during the COVID-19 pandemic (i.e., employees working from home). Percentage of emissions calculated was based on 66 employees who responded to our internal survey (2020) and their data were used as an estimate for our current 1,282 employee commutes (2021).

Upstream leased assets

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
TransAlta accounts for emissions from leased assets in its scope 2 emissions, hence this is not relevant under our scope 3 emissions.

Downstream transportation and distribution

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
39790

Emissions calculation methodology
Distance-based method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
46

Please explain
Ash is a by-product generated from coal plant which is used as a raw material in cement production. The ash is sold to two suppliers and the calculation is based on weight and distance travelled from the coal plant to the supplier site.

Processing of sold products

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
63270

Emissions calculation methodology
Average data method
Average product method

Percentage of emissions calculated using data obtained from suppliers or value chain partners
46

Please explain
The product sold, ash is used in cement production. The emissions calculated is based on the emission generated during cement production and provided by the supplier in their Scope 1 and 2 report and the total tonnage of ash sold.

Use of sold products

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
TransAlta generates electricity. There are no emissions associated with the use of electricity. GHG emissions are calculated in our scope 1 response.

End of life treatment of sold products

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
There is no end-of-life treatment required for our primary product, which is electricity. As per the laws of thermodynamics, energy changes form or is transferred, i.e., electricity powers a light bulb and the energy changes form to radiant energy (light).

Downstream leased assets

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
TransAlta does not lease any assets downstream of its business, hence this is not relevant.

Franchises

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
TransAlta has no franchises, hence this is not relevant.

Investments

Evaluation status
Relevant, calculated

Emissions in reporting year (metric tons CO2e)
2327154

Emissions calculation methodology
Investment-specific method
Other, please specify (Technology Innovation and Emissions Reduction (TIER) Regulation - Alberta GHG regulations)

Percentage of emissions calculated using data obtained from suppliers or value chain partners
69

Please explain
GHG emissions from sites that we have a financial or equity ownership percentage but are not the operator.

Other (upstream)

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
TransAlta has no other upstream emissions, hence this is not relevant.

Other (downstream)

Evaluation status
Not relevant, explanation provided

Emissions in reporting year (metric tons CO2e)
<Not Applicable>

Emissions calculation methodology
<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners
<Not Applicable>

Please explain
TransAlta has no other downstream emissions, hence this is not relevant.

C6.5a

(C6.5a) Disclose or restate your Scope 3 emissions data for previous years.

Past year 1

Start date
January 1 2020

End date
December 31 2020

Scope 3: Purchased goods and services (metric tons CO2e)
181919

Scope 3: Capital goods (metric tons CO2e)
87540

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)
408513

Scope 3: Upstream transportation and distribution (metric tons CO2e)
99120

Scope 3: Waste generated in operations (metric tons CO2e)
45436

Scope 3: Business travel (metric tons CO2e)
121

Scope 3: Employee commuting (metric tons CO2e)
5287

Scope 3: Upstream leased assets (metric tons CO2e)
0

Scope 3: Downstream transportation and distribution (metric tons CO2e)
334

Scope 3: Processing of sold products (metric tons CO2e)
209393

Scope 3: Use of sold products (metric tons CO2e)
0

Scope 3: End of life treatment of sold products (metric tons CO2e)
0

Scope 3: Downstream leased assets (metric tons CO2e)
0

Scope 3: Franchises (metric tons CO2e)
0

Scope 3: Investments (metric tons CO2e)
4032715

Scope 3: Other (upstream) (metric tons CO2e)
0

Scope 3: Other (downstream) (metric tons CO2e)
0

Comment
0

Past year 2

Start date
January 1 2019

End date
December 31 2019

Scope 3: Purchased goods and services (metric tons CO2e)
471935

Scope 3: Capital goods (metric tons CO2e)
47617

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)
439672

Scope 3: Upstream transportation and distribution (metric tons CO2e)
155292

Scope 3: Waste generated in operations (metric tons CO2e)
45435

Scope 3: Business travel (metric tons CO2e)
711

Scope 3: Employee commuting (metric tons CO2e)
2975

Scope 3: Upstream leased assets (metric tons CO2e)
0

Scope 3: Downstream transportation and distribution (metric tons CO2e)
396

Scope 3: Processing of sold products (metric tons CO2e)
0

Scope 3: Use of sold products (metric tons CO2e)
0

Scope 3: End of life treatment of sold products (metric tons CO2e)
0

Scope 3: Downstream leased assets (metric tons CO2e)
0

Scope 3: Franchises (metric tons CO2e)
0

Scope 3: Investments (metric tons CO2e)
4500346

Scope 3: Other (upstream) (metric tons CO2e)
0

Scope 3: Other (downstream) (metric tons CO2e)
0

Comment
0

C6.7

(C6.7) Are carbon dioxide emissions from biogenic carbon relevant to your organization?
No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure
0.0045960062

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)
12505732.89

Metric denominator
unit total revenue

Metric denominator: Unit total
2721000000

Scope 2 figure used
Location-based

% change from previous year
41

Direction of change
Decreased

Reason for change
In 2021, our GHGs emissions (scopes 1 and 2) were estimated to be 12.5 million tonnes as a result of normal operating activities. Compared to 2020, this represents a reduction of approximately 24 per cent or 3.9 million tonnes CO2e. Reductions in GHG emissions were primarily due to emission reduction initiatives including shutdowns during coal-to-gas conversions and coal unit retirements (as reported in C4.3b). Because we sell the environmental attributes generated from our renewable energy facilities, we do not subtract this amount from our total emissions, but it should be noted that TransAlta's customers are reporting GHG reductions using our renewable energy assets, projects and operations.

Intensity figure
0.6

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)
12505732.89

Metric denominator
megawatt hour generated (MWh)

Metric denominator: Unit total
20855535.67

Scope 2 figure used
Location-based

% change from previous year
14

Direction of change
Decreased

Reason for change
In 2021, our GHGs emissions (scopes 1 and 2) were estimated to be 12.5 million tonnes as a result of normal operating activities. Compared to 2020, this represents a reduction of approximately 24 per cent or 3.9 million tonnes CO2e. Reductions in GHG emissions were primarily due to shutdowns during coal-to-gas conversions and coal unit retirements. Because we sell the environmental attributes generated from our renewable energy facilities, we do not subtract this amount from our total emissions, but it should be noted that TransAlta's customers are reporting GHG reductions using our renewable energy assets, projects and operations.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?
Yes

C7.1a

(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	12363952	IPCC Fourth Assessment Report (AR4 - 100 year)
CH4	25067.049	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	59113	IPCC Fourth Assessment Report (AR4 - 100 year)
SF6	373	IPCC Fourth Assessment Report (AR4 - 100 year)

C-EU7.1b

(C-EU7.1b) Break down your total gross global Scope 1 emissions from electric utilities value chain activities by greenhouse gas type.

	Gross Scope 1 CO2 emissions (metric tons CO2)	Gross Scope 1 methane emissions (metric tons CH4)	Gross Scope 1 SF6 emissions (metric tons SF6)	Total gross Scope 1 emissions (metric tons CO2e)	Comment
Fugitives	3.051	3938.275	372.584	4313.91	This is associated with fugitive emissions from mining related activities and SF6. N2O emission were 0 and were included in the Total gross Scope 1 emissions.
Combustion (Electric utilities)	12343442.619	21111.08	0	12423201.827	This is associated with coal and gas combustion. N2O emissions were 58,648.13 tonnes CO2e and were included in the Total gross Scope 1 emissions.
Combustion (Gas utilities)	0	0	0	0	0
Combustion (Other)	20505.951	17.694	0	20988.268	This is associated with vehicle GHG emissions. N2O emissions were 464.62 tonnes CO2e and were included in the Total gross Scope 1 emissions.
Emissions not elsewhere classified	0	0	0	0	Not applicable.

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/region.

Country/Region	Scope 1 emissions (metric tons CO2e)
Australia	995451
Canada	7850184
United States of America	3602869

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By business division
By activity

C7.3a

(C7.3a) Break down your total gross global Scope 1 emissions by business division.

Business division	Scope 1 emissions (metric ton CO2e)
Hydro	535
Wind and Solar	888
Natural Gas	3782772
Energy Transition (coal power generation and mining)	8664309
Corporate and Energy Marketing	0

C7.3c

(C7.3c) Break down your total gross global Scope 1 emissions by business activity.

Activity	Scope 1 emissions (metric tons CO2e)
Coal-fired Power plants	9761491
Natural gas fired power plants	2661711
Coal mining - operations, surface and handling, mining vehicles	19849
Fleet vehicles	4994
Breakers - fugitive emissions (SF6)	423
Other - Renewable Energy	37

C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.

	Gross Scope 1 emissions, metric tons CO2e	Net Scope 1 emissions , metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Electric utility activities	12448504	<Not Applicable>	The remaining scope 1 emissions or 19,849 tonnes CO2e come from our coal mine, which sits adjacent to our Sundance and Keephills coal generating facilities. The mine is used to produce coal for our electric utilities business; hence we could include this in our 12,448,504 tonnes CO2e total.
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (midstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Decreased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	0	No change	0	There has been no change.
Other emissions reduction activities	3855000	Decreased	24	Total scope 1 and scope 2 (location) emissions reduced by approximately 3,855,000 tCO2e primarily due to shutdowns during coal-to-gas conversions and coal unit retirements (see also Question 4.3b). Total scope 1 and scope 2 (location) emissions reported for 2020 were 16,278,234 tCO2e therefore, we arrived at 24% through (-3,855,000 / 16,278,234) *100 = - 24% (i.e. a 24% decrease).
Divestment	0	No change	0	There has been no change.
Acquisitions	0	No change	0	There has been no change.
Mergers	0	No change	0	There has been no change.
Change in output	0	No change	0	There has been no change.
Change in methodology	0	No change	0	There has been no change.
Change in boundary	0	No change	0	There has been no change.
Change in physical operating conditions	0	No change	0	There has been no change.
Unidentified	0	No change	0	There has been no change.
Other	0	No change	0	There has been no change.

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

More than 25% but less than or equal to 30%

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	Yes
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	0	63099406	63099406
Consumption of purchased or acquired electricity	<Not Applicable>	875	174358	175234
Consumption of purchased or acquired heat	<Not Applicable>	0	0	0
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	0	<Not Applicable>	0
Total energy consumption	<Not Applicable>	875	63273764	63274639

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	No
Consumption of fuel for the generation of steam	No
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	Yes

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Sustainable biomass

Heating value
Please select

Total fuel MWh consumed by the organization
0

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment
0

Other biomass

Heating value
Please select

Total fuel MWh consumed by the organization
0

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment
0

Other renewable fuels (e.g. renewable hydrogen)

Heating value
Please select

Total fuel MWh consumed by the organization
0

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment
0

Coal

Heating value
HHV

Total fuel MWh consumed by the organization
33326771

MWh fuel consumed for self-generation of electricity
33326771

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment
0

Oil

Heating value
HHV

Total fuel MWh consumed by the organization
92414

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment
0

Gas

Heating value
HHV

Total fuel MWh consumed by the organization
29678885

MWh fuel consumed for self-generation of electricity
29678885

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment
0

Other non-renewable fuels (e.g. non-renewable hydrogen)

Heating value
HHV

Total fuel MWh consumed by the organization
1373

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment
0

Total fuel

Heating value
HHV

Total fuel MWh consumed by the organization
63099406

MWh fuel consumed for self-generation of electricity
0

MWh fuel consumed for self-generation of heat
0

MWh fuel consumed for self-generation of steam
<Not Applicable>

MWh fuel consumed for self-generation of cooling
<Not Applicable>

MWh fuel consumed for self- cogeneration or self-trigeneration
0

Comment
0

C-EU8.2d

(C-EU8.2d) For your electric utility activities, provide a breakdown of your total power plant capacity, generation, and related emissions during the reporting year by source.

Coal – hard

Nameplate capacity (MW)
0

Gross electricity generation (GWh)
0

Net electricity generation (GWh)
0

Absolute scope 1 emissions (metric tons CO2e)
0

Scope 1 emissions intensity (metric tons CO2e per GWh)
0

Comment
0

Lignite

Nameplate capacity (MW)
1472

Gross electricity generation (GWh)
9328.35

Net electricity generation (GWh)
9328.35

Absolute scope 1 emissions (metric tons CO2e)
8644461

Scope 1 emissions intensity (metric tons CO2e per GWh)
926.69

Comment
This refers to subbituminous coal.

Oil

Nameplate capacity (MW)
0

Gross electricity generation (GWh)
0

Net electricity generation (GWh)
0

Absolute scope 1 emissions (metric tons CO2e)
0

Scope 1 emissions intensity (metric tons CO2e per GWh)
0

Comment
0

Gas

Nameplate capacity (MW)
3586

Gross electricity generation (GWh)
4322.18

Net electricity generation (GWh)
4322.18

Absolute scope 1 emissions (metric tons CO2e)
3782772

Scope 1 emissions intensity (metric tons CO2e per GWh)
875.2

Comment
0

Sustainable biomass

Nameplate capacity (MW)
0

Gross electricity generation (GWh)
0

Net electricity generation (GWh)
0

Absolute scope 1 emissions (metric tons CO2e)
0

Scope 1 emissions intensity (metric tons CO2e per GWh)
0

Comment
0

Other biomass

Nameplate capacity (MW)
0

Gross electricity generation (GWh)
0

Net electricity generation (GWh)
0

Absolute scope 1 emissions (metric tons CO2e)
0

Scope 1 emissions intensity (metric tons CO2e per GWh)
0

Comment
0

Waste (non-biomass)

Nameplate capacity (MW)
0

Gross electricity generation (GWh)
0

Net electricity generation (GWh)
0

Absolute scope 1 emissions (metric tons CO2e)
0

Scope 1 emissions intensity (metric tons CO2e per GWh)
0

Comment
0

Nuclear

Nameplate capacity (MW)
0

Gross electricity generation (GWh)
0

Net electricity generation (GWh)
0

Absolute scope 1 emissions (metric tons CO2e)
0

Scope 1 emissions intensity (metric tons CO2e per GWh)
0

Comment
0

Fossil-fuel plants fitted with CCS

Nameplate capacity (MW)
0

Gross electricity generation (GWh)
0

Net electricity generation (GWh)
0

Absolute scope 1 emissions (metric tons CO2e)
0

Scope 1 emissions intensity (metric tons CO2e per GWh)
0

Comment
0

Geothermal

Nameplate capacity (MW)
0

Gross electricity generation (GWh)
0

Net electricity generation (GWh)
0

Absolute scope 1 emissions (metric tons CO2e)
0

Scope 1 emissions intensity (metric tons CO2e per GWh)
0

Comment
0

Hydropower

Nameplate capacity (MW)
947

Gross electricity generation (GWh)
1936

Net electricity generation (GWh)
1936

Absolute scope 1 emissions (metric tons CO2e)
535

Scope 1 emissions intensity (metric tons CO2e per GWh)
0.28

Comment
0

Wind

Nameplate capacity (MW)
1906

Gross electricity generation (GWh)
3855

Net electricity generation (GWh)
3855

Absolute scope 1 emissions (metric tons CO2e)
869

Scope 1 emissions intensity (metric tons CO2e per GWh)
0.23

Comment
0

Solar

Nameplate capacity (MW)
143

Gross electricity generation (GWh)
44

Net electricity generation (GWh)
44

Absolute scope 1 emissions (metric tons CO2e)
19

Scope 1 emissions intensity (metric tons CO2e per GWh)
0.44

Comment
0

Marine

Nameplate capacity (MW)
0

Gross electricity generation (GWh)
0

Net electricity generation (GWh)
0

Absolute scope 1 emissions (metric tons CO2e)
0

Scope 1 emissions intensity (metric tons CO2e per GWh)
0

Comment
0

Other renewable

Nameplate capacity (MW)
0

Gross electricity generation (GWh)
0

Net electricity generation (GWh)
0

Absolute scope 1 emissions (metric tons CO2e)
0

Scope 1 emissions intensity (metric tons CO2e per GWh)
0

Comment
0

Other non-renewable

Nameplate capacity (MW)
0

Gross electricity generation (GWh)
0

Net electricity generation (GWh)
0

Absolute scope 1 emissions (metric tons CO2e)
0

Scope 1 emissions intensity (metric tons CO2e per GWh)
0

Comment
0

Total

Nameplate capacity (MW)
8054

Gross electricity generation (GWh)
19486

Net electricity generation (GWh)
19486

Absolute scope 1 emissions (metric tons CO2e)
12428656

Scope 1 emissions intensity (metric tons CO2e per GWh)
637.73

Comment
The figures shown were calculated as per an operational control boundary.

C8.2g

(C8.2g) Provide a breakdown of your non-fuel energy consumption by country.

Country/area
Canada

Consumption of electricity (MWh)
130050

Consumption of heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [Auto-calculated]
130050

Is this consumption excluded from your RE100 commitment?
<Not Applicable>

Country/area
United States of America

Consumption of electricity (MWh)
45099

Consumption of heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [Auto-calculated]
45099

Is this consumption excluded from your RE100 commitment?
<Not Applicable>

Country/area
Australia

Consumption of electricity (MWh)
85

Consumption of heat, steam, and cooling (MWh)
0

Total non-fuel energy consumption (MWh) [Auto-calculated]
85

Is this consumption excluded from your RE100 commitment?
<Not Applicable>

C-EU8.4

(C-EU8.4) Does your electric utility organization have a transmission and distribution business?
No

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

Description
Energy usage

Metric value
191242000

Metric numerator
GJ

Metric denominator (intensity metric only)
0

% change from previous year
31

Direction of change
Decreased

Please explain
The decrease is attributable to continued reduction of coal use. One of TransAlta's climate-related targets is to achieve "No further coal generation by the end of 2025 with 100 per cent of our owned net generation capacity to be from renewables and gas".

C-EU9.5a

(C-EU9.5a) Break down, by source, your organization's CAPEX in the reporting year and CAPEX planned over the next 5 years.

Coal – hard

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)
114000000

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year
29

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years
3

Explain your CAPEX calculations, including any assumptions
This CAPEX total includes routine capital, planned major maintenance capital, mine capital, and productivity capital (collectively sustaining and productivity capital expenditures). Outside of ongoing sustaining and productivity capital expenditures we have no growth-related expenditures for coal, rather our final coal unit will retire in 2025. Growth capital expenditures for completed coal-to-gas conversions are captured in gas CAPEX below.

Lignite

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)
0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year
0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years
0

Explain your CAPEX calculations, including any assumptions
0

Oil

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)
0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year
0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years
0

Explain your CAPEX calculations, including any assumptions
0

Gas

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)
83000000

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year
21

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years
11

Explain your CAPEX calculations, including any assumptions
This CAPEX total includes routine capital, planned major maintenance capital, mine capital, and productivity capital (collectively sustaining and productivity capital expenditures). It also includes the potential for steam turbine upgrades for a customer in Australia. Approximately 42 per cent of this total cost is associated with our coal-to-gas conversions in Alberta. To date, we have retired 4,064 MW of coal-fired generation capacity since 2018 while converting 1,659 MW to natural gas.

Sustainable biomass

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)
0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year
0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years
0

Explain your CAPEX calculations, including any assumptions
0

Other biomass

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)
0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year
0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years
0

Explain your CAPEX calculations, including any assumptions
0

Waste (non-biomass)

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)
0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year
0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years
0

Explain your CAPEX calculations, including any assumptions
0

Nuclear

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)
0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year
0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years
0

Explain your CAPEX calculations, including any assumptions
0

Geothermal

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)
0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year
0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years
0

Explain your CAPEX calculations, including any assumptions
0

Hydropower

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)
30000000

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year
8

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years
4

Explain your CAPEX calculations, including any assumptions
Costs are associated primarily with sustaining and productivity capital expenditures.

Wind

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)
159000000

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year
41

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years
82

Explain your CAPEX calculations, including any assumptions
This CAPEX total includes six wind development projects and sustaining and productivity capital expenditures. Development capital expenditures account for approximately 92 per cent of this total.

Solar

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)
0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year
0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years
0

Explain your CAPEX calculations, including any assumptions
CAPEX related to solar has been considered under Wind, as we publicly disclose their financial information together.

Marine

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)
0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year
0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years
0

Explain your CAPEX calculations, including any assumptions
0

Fossil-fuel plants fitted with CCS

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)
0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year
0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years
0

Explain your CAPEX calculations, including any assumptions
0

Other renewable (e.g. renewable hydrogen)

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)
0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year
0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years
0

Explain your CAPEX calculations, including any assumptions
0

Other non-renewable (e.g. non-renewable hydrogen)

CAPEX in the reporting year for power generation from this source (unit currency as selected in C0.4)
0

CAPEX in the reporting year for power generation from this source as % of total CAPEX for power generation in the reporting year
0

CAPEX planned over the next 5 years for power generation from this source as % of total CAPEX planned for power generation over the next 5 years
0

Explain your CAPEX calculations, including any assumptions
0

C-EU9.5b

(C-EU9.5b) Break down your total planned CAPEX in your current CAPEX plan for products and services (e.g. smart grids, digitalization, etc.).

Products and services	Description of product/service	CAPEX planned for product/service	Percentage of total CAPEX planned products and services	End of year CAPEX plan
Distributed generation	CAPEX figures refer to transmission lines to serve to provide renewable solar electricity supported with a battery energy storage system to BHP Nickel West in Western Australia.	2430000	0	2022

C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
Row 1	Yes	Research and development activity has fluctuated over time due to cash flow availability, market demands, and capacity of innovation potential. In 2020 we invested in a 10 MW/20 MWh "first of its kind" battery storage project in Alberta that stores energy produced by our Summerview II wind facility and discharges electricity onto the Alberta grid during system supply shortages. We continue to explore battery storage opportunities. Further, in 2021, we agreed to provide renewable solar electricity supported with a 10.1 MW/5.4 MWh battery energy storage system to BHP through the construction of the Northern Goldfields Solar Project in Western Australia. This project will support BHP in meeting its emissions reduction targets and delivering lower carbon, sustainable nickel to its customers. With a target operation date in early 2023, the Northern Goldfields Solar Project is expected to reduce BHP's scope 2 electricity GHG emissions by 540,000 tonnes of CO2e over the first 10 years of operation. As part of our Clean Electricity Growth Plan, in 2021 we established a new technology team tasked with building our expertise in emerging technologies. Our work in this area led to two investments in the first quarter of 2022: (i) $2 million equity investment in Ekona Power Inc.'s ("Ekona") Series A funding round. The investment will help support the commercialization of Ekona's novel methane pyrolysis technology platform, which produces cleaner and lower-cost turquoise hydrogen; and (ii) a commitment to invest US$25 million over the next four years in EIP's Deep Decarbonization Frontier Fund 1 (the "Frontier Fund") that will invest in early-stage, innovative technology companies that will accelerate the transition to net-zero greenhouse gas emissions. TransAlta's investment in the Frontier Fund provides the Company with the opportunity to identify, pilot, commercialize and bring to market technologies that will support its decarbonization goals. We will continue to make strategic investments moving forward.

C-CO9.6a/C-EU9.6a/C-OG9.6a

(C-CO9.6a/C-EU9.6a/C-OG9.6a) Provide details of your organization's investments in low-carbon R&D for your sector activities over the last three years.

Technology area	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (optional)	Comment
Energy storage	Small scale commercial deployment	41-60%		To combat the challenges of renewable energy intermittency, we continue to invest in battery storage. In 2020, we launched WindCharger, a "first of its kind" 10 MW/20 MWh utility-scale battery storage project in Alberta that stores energy produced by our Summerview II wind facility and discharges electricity onto the Alberta grid during system supply shortages.
Energy storage	Applied research and development	41-60%		In 2021, we agreed to provide renewable solar electricity supported with a 10.1 MW/5.4 MWh battery energy storage system to BHP through the construction of the Northern Goldfields Solar Project in Western Australia. This project will support BHP in meeting its emissions reduction targets and delivering lower carbon, sustainable nickel to its customers. With a target operation date in early 2023, the Northern Goldfields Solar Project is expected to reduce BHP's scope 2 electricity GHG emissions by 540,000 tonnes of CO2e over the first 10 years of operation.

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	No third-party verification or assurance

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements.

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
TAC2021-Integrated-Report-Feb-23.pdf

Page/ section reference
Pages 257-259 of our 2021 Integrated Report. TransAlta's 'Total greenhouse gas emissions', which includes 100 per cent of our Company-wide scope 1 and scope 2 GHG emissions received limited assurance under the criteria SASB IF-EU-110a.1.

Relevant standard
ISAE 3410

Proportion of reported emissions verified (%)
100

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 2 emissions and attach the relevant statements.

Scope 2 approach
Scope 2 location-based

Verification or assurance cycle in place
Annual process

Status in the current reporting year
Complete

Type of verification or assurance
Limited assurance

Attach the statement
TAC2021-Integrated-Report-Feb-23.pdf

Page/ section reference
Pages 257-259 of our 2021 Integrated Report. TransAlta's 'Total greenhouse gas emissions', which includes 100 per cent of our Company-wide scope 1 and scope 2 GHG emissions received limited assurance under the criteria SASB IF-EU-110a.1.

Relevant standard
ISAE 3410

Proportion of reported emissions verified (%)
100

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?
Yes

C10.2a

(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C6. Emissions data	Year on year change in emissions (Scope 1)	The International Standard for Assurance Engagements Other Than Audits or Reviews of Historical Financial Information ("ISAE 3000") and the International Standard for Assurance Engagements 3410, Assurance Engagements on Greenhouse Gas Statements ("ISAE 3410").	Assurance Statement is available on pages 257-259 of our Annual Integrated Report. TAC2021-Integrated-Report-Feb-23.pdf
C6. Emissions data	Year on year change in emissions (Scope 2)	The International Standard for Assurance Engagements Other Than Audits or Reviews of Historical Financial Information ("ISAE 3000") and the International Standard for Assurance Engagements 3410, Assurance Engagements on Greenhouse Gas Statements ("ISAE 3410").	Assurance Statement is available on pages 257-259 of our Annual Integrated Report. TAC2021-Integrated-Report-Feb-23.pdf
C6. Emissions data	Year on year change in emissions (Scope 1 and 2)	The International Standard for Assurance Engagements Other Than Audits or Reviews of Historical Financial Information ("ISAE 3000") and the International Standard for Assurance Engagements 3410, Assurance Engagements on Greenhouse Gas Statements ("ISAE 3410").	Assurance Statement is available on pages 257-259 of our Annual Integrated Report. TAC2021-Integrated-Report-Feb-23.pdf
C6. Emissions data	Year on year emissions intensity figure	The International Standard for Assurance Engagements Other Than Audits or Reviews of Historical Financial Information ("ISAE 3000") and the International Standard for Assurance Engagements 3410, Assurance Engagements on Greenhouse Gas Statements ("ISAE 3410").	Assurance Statement is available on pages 257-259 of our Annual Integrated Report. TAC2021-Integrated-Report-Feb-23.pdf

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?
Yes

C11.1a

(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.

Alberta TIER - ETS
Canada federal fuel charge
Canada federal Output Based Pricing System (OBPS) - ETS
Washington CAR - ETS

C11.1b

(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.

Alberta TIER - ETS

% of Scope 1 emissions covered by the ETS
54

% of Scope 2 emissions covered by the ETS
0

Period start date
January 1 2021

Period end date
December 31 2021

Allowances allocated
0

Allowances purchased
0

Verified Scope 1 emissions in metric tons CO2e
6706512

Verified Scope 2 emissions in metric tons CO2e
0

Details of ownership
Facilities we own and operate

Comment
This refers to Alberta TIER - Carbon Tax.

Canada federal OBPS - ETS

% of Scope 1 emissions covered by the ETS
9

% of Scope 2 emissions covered by the ETS
0

Period start date
January 1 2021

Period end date
December 31 2021

Allowances allocated
0

Allowances purchased
0

Verified Scope 1 emissions in metric tons CO2e
1101345

Verified Scope 2 emissions in metric tons CO2e
0

Details of ownership
Facilities we own and operate

Comment
0

Washington CAR - ETS

% of Scope 1 emissions covered by the ETS
28

% of Scope 2 emissions covered by the ETS
0

Period start date
January 1 2021

Period end date
December 31 2021

Allowances allocated
0

Allowances purchased
0

Verified Scope 1 emissions in metric tons CO2e
3486311

Verified Scope 2 emissions in metric tons CO2e
0

Details of ownership
Facilities we own and operate

Comment
0

C11.1c

(C11.1c) Complete the following table for each of the tax systems you are regulated by.

Canada federal fuel charge

Period start date
January 1 2021

Period end date
December 31 2021

% of total Scope 1 emissions covered by tax
0

Total cost of tax paid
0

Comment
TransAlta was exempted from the fuel charge tax since we were covered under TIER in Alberta and the OBPS in Ottawa.

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

Carbon cost has become an important factor in all investment decisions taken by TransAlta. Our strategy is to participate in carbon pricing markets from a design, process, and continuous improvement standpoint, and also strategically for the purpose of either lowering compliance costs (i.e., optimize facilities) or generating revenue (i.e., offsets, trading). TransAlta's exposure to carbon compliance costs is mitigated through the use of eligible emission credits generated from the Company's Wind and Solar and Hydro segments, as well as, purchasing emission credits from the market at prices lower than the regulated compliance price of carbon. Emission credits generated from our Alberta business have no recorded book value but are expected to be used to offset emission obligations from our gas facilities located in Canada in the future when the compliance price of carbon is expected to increase, resulting in a reduced cash cost for carbon compliance.

TransAlta has employment positions dedicated to managing and complying with all the carbon programs in our operating jurisdictions. The individuals work to ensure we respect the prerequisite and compliance rules of each market and comment and participate in the implementation of new markets and/or new instruments. From the trader to the compliance analyst, to the emission engineer we make sure that TransAlta has the knowledge to understand these different carbon programs. Our contributions to policy design of the Carbon Competitiveness Incentive Regulation (CCIR) and Technology Innovation and Emission Reduction (TIER) in Alberta helped secure opt in for origination of carbon offset credits from our hydro and a number of wind facilities in the province. Carbon offsets currently track the carbon price in Alberta which was $40/tonne in 2021 and we expect to generate additional revenue as the Alberta carbon price escalates as forecasted, significantly adding value to our renewable facilities and to shareholders.

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?
Yes

C11.2a

(C11.2a) Provide details of the project-based carbon credits originated or purchased by your organization in the reporting period.

Credit origination or credit purchase
Credit origination

Project type
Hydro

Project identification
Alberta Hydro EPC

Verified to which standard
ACR (American Carbon Registry)

Number of credits (metric tonnes CO2e)
556518

Number of credits (metric tonnes CO2e): Risk adjusted volume
556518

Credits cancelled
No

Purpose, e.g. compliance
Compliance

Credit origination or credit purchase
Credit origination

Project type
Wind

Project identification
Alberta Wind EPC

Verified to which standard
ACR (American Carbon Registry)

Number of credits (metric tonnes CO2e)
209242

Number of credits (metric tonnes CO2e): Risk adjusted volume
209242

Credits cancelled
No

Purpose, e.g. compliance
Compliance

Credit origination or credit purchase
Credit origination

Project type
Wind

Project identification
Alberta Wind Offset

Verified to which standard
ACR (American Carbon Registry)

Number of credits (metric tonnes CO2e)
331639

Number of credits (metric tonnes CO2e): Risk adjusted volume
331639

Credits cancelled
No

Purpose, e.g. compliance
Compliance

Credit origination or credit purchase
Credit purchase

Project type
Other, please specify (Carbon capture and storage)

Project identification
7306-8118

Verified to which standard
Other, please specify (Alberta Offset Program)

Number of credits (metric tonnes CO2e)
157239

Number of credits (metric tonnes CO2e): Risk adjusted volume
157239

Credits cancelled
Yes

Purpose, e.g. compliance
Compliance

Credit origination or credit purchase
Credit purchase

Project type
Other, please specify (Waste heat recovery)

Project identification
3819-3638

Verified to which standard
Other, please specify (Alberta Offset Program)

Number of credits (metric tonnes CO2e)
6182

Number of credits (metric tonnes CO2e): Risk adjusted volume
6182

Credits cancelled
Yes

Purpose, e.g. compliance
Compliance

Credit origination or credit purchase
Credit purchase

Project type
Energy efficiency: industry

Project identification
8434-5169

Verified to which standard
Other, please specify (Alberta Offset Program)

Number of credits (metric tonnes CO2e)
8355

Number of credits (metric tonnes CO2e): Risk adjusted volume
8355

Credits cancelled
Yes

Purpose, e.g. compliance
Compliance

Credit origination or credit purchase
Credit purchase

Project type
Other, please specify (Vent gas capture)

Project identification
5561-9279, 8056-2592, 5561-9280

Verified to which standard
Other, please specify (Alberta Offset Program)

Number of credits (metric tonnes CO2e)
6370

Number of credits (metric tonnes CO2e): Risk adjusted volume
6370

Credits cancelled
Yes

Purpose, e.g. compliance
Compliance

Credit origination or credit purchase
Credit purchase

Project type
Landfill gas

Project identification
3754-3212

Verified to which standard
Other, please specify (Alberta Offset Program)

Number of credits (metric tonnes CO2e)
82216

Number of credits (metric tonnes CO2e): Risk adjusted volume
82216

Credits cancelled
Yes

Purpose, e.g. compliance
Compliance

Credit origination or credit purchase
Credit purchase

Project type
Other, please specify (Fluidized Bed Boiler Offset)

Project identification
9327-1871

Verified to which standard
Other, please specify (Alberta Offset Program)

Number of credits (metric tonnes CO2e)
26720

Number of credits (metric tonnes CO2e): Risk adjusted volume
26720

Credits cancelled
Yes

Purpose, e.g. compliance
Compliance

Credit origination or credit purchase
Credit purchase

Project type
Other, please specify (CO2 Capture)

Project identification
4593-7854 3482-7976

Verified to which standard
Other, please specify (Alberta Offset)

Number of credits (metric tonnes CO2e)
50000

Number of credits (metric tonnes CO2e): Risk adjusted volume
50000

Credits cancelled
Yes

Purpose, e.g. compliance
Compliance

Credit origination or credit purchase
Credit purchase

Project type
Agriculture

Project identification
6187-7698

Verified to which standard
Other, please specify (Alberta Offset Program)

Number of credits (metric tonnes CO2e)
226592

Number of credits (metric tonnes CO2e): Risk adjusted volume
226592

Credits cancelled
Yes

Purpose, e.g. compliance
Compliance

Credit origination or credit purchase
Credit purchase

Project type
Wind

Project identification
4852-9626

Verified to which standard
Other, please specify (Alberta Offset Program)

Number of credits (metric tonnes CO2e)
10029

Number of credits (metric tonnes CO2e): Risk adjusted volume
10029

Credits cancelled
Yes

Purpose, e.g. compliance
Compliance

Credit origination or credit purchase
Credit purchase

Project type
Other, please specify (Biogas)

Project identification
7938-6553

Verified to which standard
Other, please specify (Alberta Offset Program)

Number of credits (metric tonnes CO2e)
12928

Number of credits (metric tonnes CO2e): Risk adjusted volume
12928

Credits cancelled
Yes

Purpose, e.g. compliance
Compliance

Credit origination or credit purchase
Credit purchase

Project type
Other, please specify (Biogas)

Project identification
2198-6459

Verified to which standard
Other, please specify (Alberta Offset Program)

Number of credits (metric tonnes CO2e)
18660

Number of credits (metric tonnes CO2e): Risk adjusted volume
18660

Credits cancelled
Please select

Purpose, e.g. compliance
Please select

Credit origination or credit purchase
Credit purchase

Project type
Fugitive

Project identification
1276-2297

Verified to which standard
Other, please specify (Alberta Offset Program)

Number of credits (metric tonnes CO2e)
3861

Number of credits (metric tonnes CO2e): Risk adjusted volume
3861

Credits cancelled
Yes

Purpose, e.g. compliance
Compliance

Credit origination or credit purchase
Credit purchase

Project type
Energy efficiency: industry

Project identification
2101-0072

Verified to which standard
Other, please specify (Alberta Offset Program)

Number of credits (metric tonnes CO2e)
7315

Number of credits (metric tonnes CO2e): Risk adjusted volume
7315

Credits cancelled
Yes

Purpose, e.g. compliance
Compliance

Credit origination or credit purchase
Credit purchase

Project type
Other, please specify (Waste heat recovery)

Project identification
1802-5829 1802-5830

Verified to which standard
Other, please specify (Alberta Offset Program)

Number of credits (metric tonnes CO2e)
5028

Number of credits (metric tonnes CO2e): Risk adjusted volume
5028

Credits cancelled
Yes

Purpose, e.g. compliance
Compliance

Credit origination or credit purchase
Credit purchase

Project type
N2O

Project identification
9238-1983

Verified to which standard
Other, please specify (Alberta Offset Program)

Number of credits (metric tonnes CO2e)
4072

Number of credits (metric tonnes CO2e): Risk adjusted volume
4072

Credits cancelled
Yes

Purpose, e.g. compliance
Compliance

Credit origination or credit purchase
Credit purchase

Project type
Other, please specify (GHG reduction)

Project identification
2877-2127

Verified to which standard
Other, please specify (Alberta Offset Program)

Number of credits (metric tonnes CO2e)
21057

Number of credits (metric tonnes CO2e): Risk adjusted volume
21057

Credits cancelled
Yes

Purpose, e.g. compliance
Compliance

Credit origination or credit purchase
Credit purchase

Project type
Biomass energy

Project identification
9963-2876 1724-5756

Verified to which standard
Other, please specify (Alberta Offset Program)

Number of credits (metric tonnes CO2e)
95636

Number of credits (metric tonnes CO2e): Risk adjusted volume
95636

Credits cancelled
Yes

Purpose, e.g. compliance
Compliance

C11.3

(C11.3) Does your organization use an internal price on carbon?
Yes

C11.3a

(C11.3a) Provide details of how your organization uses an internal price on carbon.

Objective for implementing an internal carbon price
Navigate GHG regulations
Stakeholder expectations
Drive low-carbon investment
Stress test investments
Identify and seize low-carbon opportunities

GHG Scope
Scope 1
Scope 2

Application
In jurisdictions with a clear carbon regulatory framework or policy plan, we adopt them as our planning tool e.g., TIER in Alberta where we paid $40/tonne in 2021. In Canada, we modelled carbon price at $40/tonne in 2021 rising to $170 by 2030. In jurisdictions without carbon pricing, the US and Australia, we apply scenario analysis to an effective carbon price to guide decisions; in many cases we have built in contract protection through flow of carbon pricing to the customer. We do not always include offset generating potential modelling in budget calculations. The primary driver for wind development is electrical generation. Jurisdictions where attractive offset potential exists, such as when we do produce offset credits at the prevailing carbon price from many of our Alberta renewable facilities, it is taken into consideration along with a number of other factors (e.g., stability of the offset market).

Actual price(s) used (Currency /metric ton)
40

Variance of price(s) used
Approximately 70 per cent

Type of internal carbon price
Shadow price
Offsets

Impact & implication
Our coal-to-gas transition in Alberta, which was completed in 2021, has been influenced by carbon pricing and other factors such as electricity prices, industry trends towards cleaner power solutions, customer preference towards sustainable products, and external market forces. Carbon costs to run coal in an Alberta $40/tonne carbon price environment are approximately $30/MWh. This would increase in 2022 as carbon prices are expected to rise to $50/tonne, in line with Canadian federal guidance. The conversion of coal units to gas significantly reduces carbon costs/MWh. In a modelled $40 carbon price environment, carbon costs are approximately $10/MWh for coal facilities converted to gas through boiler conversions. For coal facilities repowered to gas, emission costs are close to zero in Alberta. Our analysis is based on a sub-critical unit, $40 per tonne carbon price, and 0.37 tonne CO2e /MWh performance standard. Emission costs include carbon and, in the case of coal, mercury, NOx and SOx. Analysis will vary depending on heat rate and capacity factors.

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?
Yes, our customers/clients
Yes, other partners in the value chain

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement & Details of engagement

Collaboration & innovation	Run a campaign to encourage innovation to reduce climate change impacts

% of customers by number

58

% of customer - related Scope 3 emissions as reported in C6.5

0

Please explain the rationale for selecting this group of customers and scope of engagement

TransAlta serves industrial and commercial customers with power and energy services across its fleet in Canada, the US and Australia. We are focused on customer-centred renewables growth to bring high levels of service quality and reliability for our customers in a low carbon future. We continue to develop renewable energy facilities to support customers achieving their sustainability goals and targets, such as 100 per cent renewable power targets and/or GHG reduction targets. Hence, selected scope of engagement with customers is to provide clean electricity. Our climate-related engagement strategy with our customers supports our Clean Electricity Growth Plan, which will see the Company execute on 2 GW of renewables growth by 2025 from 2021 levels. Today, our renewable fleet makes us one of the largest renewable power producers in North America, one of the largest producers of wind power in Canada and the largest producer of hydro power in Alberta. We help our customers by reliably delivering and operating renewable and storage projects and on-site generation that meet their energy needs. The scope of engagement and the group of customers refer to 2021-2023 wind and solar developments (see C2.4a): our Garden Plain wind project in Alberta is subject to a PPA with Pembina and an investment-grade customer, our White Rock Wind Projects in Oklahoma is subject to a PPA with Amazon, and our Northern Goldfields Solar Project with a battery energy storage system in Western Australia is subject to a PPA with BHP. Our Horizon Hill wind project is subject to a long-term PPA with Meta. Our Windrise project is fully contracted through a 20-year offtake agreement with the Alberta Electric System Operator. All are examples of a tailored approach designed to meet the unique needs of customers as they advance their own decarbonization goals. In the future, we see more demand for reliable zero-emission electricity and our growth strategy is designed to position the Company to deliver these projects effectively for new and existing partners in all of our markets.

Impact of engagement, including measures of success

We measure the success of our engagement through growth in our zero- and low-carbon generation fleet. Our long-term average production from renewable sources increased 14 per cent to 6,375 GWh in 2021 from 5,579 GWh in 2019. This is calculated based on our portfolio as at Dec. 31, 2021, on an annualized basis from the average annual energy yield predicted from our simulation model based on historical resource data performed over a period of typically 30-35 years for the Wind and Solar segment and 36 years for Hydro segment (TransAlta's 2021 Integrated Report, page M21). Actual production from renewable electricity in 2021 resulted in the avoidance of approximately 2.6 million tonnes of CO2e for our customers. Our investments and growth in renewable energy are highlighted by our portfolio of renewable energy-generating assets. From 2000 to 2021, we grew our nameplate renewables capacity from approximately 900 MW to over 2,800 MW. Percentage of customers was calculated as the percentage of total estimated production from selected wind and solar developments (3,388 GWh) compared to the total 2021 actual production from renewable sources (5,834 GWh) as follows: 3,388 GWh/5,834 GWh = 58 per cent. The total estimated CO2e avoidance is approximately 1.4 million tonnes.

C12.1d

(C12.1d) Give details of your climate-related engagement strategy with other partners in the value chain.

In addition to suppliers and customers, we also engage with stakeholders on climate-related matters. Our stakeholders are identified through stakeholder mapping exercises conducted for each facility and prospective project development or acquisition. A key focus of our work is to support business growth through proactive engagement with stakeholders in our geographic operating areas in Canada, the US and Australia to develop and maintain relationships, assess needs and fit and seek out collaborative and sustainable opportunities. For example, in 2021 we have identified the potential for 2,085 to 2,685 MW of global installed capacity through 15 early-stage development projects, which will help deliver 2 GW of incremental renewable capacity by the end of 2025 as part of our Clean Electricity Growth Plan. These projects may have collected meteorological data, started environmental studies, and provided opportunity for engagement with stakeholders. Our stakeholder engagement practices are guided by regulatory requirements, industry best practices, international standards and corporate policies. This helps ensure any stakeholder concerns are identified and can be addressed early in the development process, thereby minimizing project delays. We conduct consultation primarily during project development and construction and maintain engaged communication throughout operations to decommissioning. Specific examples of climate-related stakeholder engagement in 2021 regarding our Canadian fleet include: the WaterCharger Battery Energy Storage Project; the closure of the Highvale mine; the suspension of the Sundance Unit 5 Repowering Project; and the coal-to-gas transition at our Alberta plants.

TransAlta has supported workers and communities in the United States and Canada during our energy transition. In 2015, we announced a US$55 million community investment 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. Three funding boards were formed to invest the US$55 million: the Weatherization Board (US$10 million), the Economic & Community Development Board (US$20 million) and the Energy Technology Board (US$25 million). To date, a total of US$33 million have been invested: the Weatherization Board has invested US$8 million, the Economic & Community Development Board US$15 million and the Energy Technology Board US$10 million. Specific projects that the boards funded in 2021 include financial support to learning centres (the United Learning Center project, a Boys & Girls Club and the Discover Children's Museum), a project to install the first renewable energy project in Washington state that generates electricity by harvesting excess pressure from municipal water pipeline, and the installation of a shore power connection point at the Bell Street Cruise Terminal at Pier 66 in Seattle, Washington. The shore power connection will allow vessels with shore power technology to plug into the local electrical grid, which reduces GHG emissions and the burden of diesel exposure to people who live, work and visit along the Seattle waterfront. In Canada, in 2016 TransAlta announced that we had reached an agreement with the Government of Alberta for the cessation of coal-fired emissions from coal-fired electricity generation facilities in Alberta (Off-Coal Agreement). As part of the Off-Coal Agreement, TransAlta has committed to spending $750,000 annually on programs and initiatives to support the communities surrounding the plants negatively impacted by the phase-out of coal generation during the transition.

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?

No, but we plan to introduce climate-related requirements within the next two years

C12.3

(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?

Row 1

Direct or indirect engagement that could influence policy, law, or regulation that may impact the climate

Yes, we engage directly with policy makers

Yes, we engage indirectly through trade associations

Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?

Yes

Attach commitment or position statement(s)

"TransAlta remains committed to creating a path to resiliency in a decarbonizing world so that we support the goals proposed under the Paris Agreement and those solidified during successive meetings, such as COP26", please refer to page M74 of TransAlta's 2021 Integrated Report. Since 2005, we have reduced our GHG emissions by 29 million tonnes or 9 to 10 per cent of Canada's Paris Agreement goal (page 16 of TransAlta's 2021 Integrated Report).

TAC2021-Integrated-Report-Feb-23.pdf

Describe the process(es) your organization has in place to ensure that your engagement activities are consistent with your overall climate change strategy

TransAlta is currently in a multi-year transition to convert or retire all of our thermal coal units completely by the end of 2025. Our Clean Energy Investment Plan, announced in 2019, included converting our existing Alberta coal assets to natural gas and advancing our leadership position in renewable electricity. To date, we have retired 4,064 MW of coal-fired generation capacity since 2018 while converting 1,659 MW to natural gas, significantly reducing our carbon footprint. In 2021, we completed our off-coal transition in Canada and our remaining coal-fired facility in the United States is committed to be retired on December 31, 2025. In September 2021, we announced a Clean Electricity Growth Plan that includes climate-related strategic targets: (i) Deliver 2GW of incremental renewable capacity with a targeted capital investment of $3 billion by the end of 2025, (ii) Accelerate growth in customer-centred renewable energy solutions through the deployment of our 3 GW development pipeline; (iii) Enable a two-fold increase in renewables by 2030; and (iv) Achieve 70 per cent of EBITDA from renewables and storage by the end of 2025. Specific climate-related targets include: - By 2026, achieve a 75 per cent reduction of scope 1 and 2 GHG emissions from a 2015 base year. We estimate that this is in line with limiting global warming to 1.5°C and, in December 2021, committed to setting a science-based emissions reduction target through the Science Based Targets initiative (SBTi); - By 2050, achieve carbon neutrality; - No further coal generation by the end of 2025 with 100 per cent of our owned net generation capacity to be from renewables and gas; and - Develop new renewable projects that support our customers' sustainability goals to achieve both long-term power price affordability and carbon reductions. Our strategy ensures that our activities support low carbon policy. We actively engage policymakers and stakeholders on how to facilitate a transition where the electricity systems we serve can reach net-zero emissions while maintaining reliability. TransAlta has a single function responsible for overseeing engagement - members of our government relations and regulatory teams are expected to represent these corporate positions when engaging with policy makers or trade associations. As previously noted, we support smart carbon pricing that ensures competitiveness for the electricity sector, while reducing carbon emissions.

Primary reason for not engaging in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

<Not Applicable>

Explain why your organization does not engage in activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

<Not Applicable>

C12.3a

(C12.3a) On what policy, law, or regulation that may impact the climate has your organization been engaging directly with policy makers in the reporting year?

Focus of policy, law, or regulation that may impact the climate
Other, please specify (Carbon pricing)

Specify the policy, law, or regulation on which your organization is engaging with policy makers
Directly engaged with government, policymakers, industry, and NGOs on new carbon market design for Alberta, which became effective Jan 1, 2020, as the Technology Innovation and Emissions Reduction (TIER) regulation. The regulation is currently undergoing a legislatively mandated review and update to be equivalent with the federal government carbon price increase benchmark and stringency.

Policy, law, or regulation geographic coverage
Regional

Country/region the policy, law, or regulation applies to
Other, please specify (Alberta)

Your organization's position on the policy, law, or regulation
Support with no exceptions

Description of engagement with policy makers
We actively participated in the carbon market redesign and advocated for design that would ensure competitiveness, growth, and job creation in Alberta, while succeeding at reducing emissions. Following our engagement, a large majority of our Alberta hydro facilities and wind facilities were qualified to generate carbon offset credits under the current Technology Innovation and Emissions Reduction (TIER) regulation, which results in additional revenue for TransAlta at the TIER per tonne CO2e price ($40/tonne in 2021) and enhances the competitiveness of these assets relative to fossil-generation units. We advocated that these facilities, which are renewable facilities, continue to be included within the carbon offset component of TIER.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation
<Not Applicable>

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Focus of policy, law, or regulation that may impact the climate
Renewable energy generation

Specify the policy, law, or regulation on which your organization is engaging with policy makers
Directly engaged with government, policymakers, industry, and NGOs on Canada's proposed Clean Electricity Standard.

Policy, law, or regulation geographic coverage
National

Country/region the policy, law, or regulation applies to
Canada

Your organization's position on the policy, law, or regulation
Support with no exceptions

Description of engagement with policy makers
TransAlta core convictions are that the price of renewables will continue declining, the price of battery storage will continue to decline, and demand for clean electricity will increase. We continue to engage policymakers and stakeholders regarding the best way to facilitate a transition where the electricity systems we serve can reach net zero while maintaining competitive costs and reliability. We will continue to invest in renewables and assess the best options to deliver reliability through energy storage, including incorporating learnings from our industrial-scale battery into our corporate strategy and sharing those learnings with government. At the same time, we agree with the Government of Canada's view that natural gas will play an important role within a net zero grid in the coming decades, providing generation to support system demands and intermittent renewable generation.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation
<Not Applicable>

Have you evaluated whether your organization's engagement is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

C12.3b

(C12.3b) Provide details of the trade associations your organization engages with which are likely to take a position on any policy, law or regulation that may impact the climate.

Trade association
Other, please specify (Independent Power Producers Society of Alberta (IPPSA))

Is your organization's position on climate change consistent with theirs?
Consistent

Has your organization influenced, or is your organization attempting to influence their position?
We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)
We are aligned with IPPSA on the need for a transition to a lower carbon grid in Alberta. At TransAlta we support smart carbon pricing policies that support competitiveness, while reducing carbon emissions.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)
0

Describe the aim of your organization's funding
<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

Trade association
Other, please specify (Electricity Canada)

Is your organization's position on climate change consistent with theirs?
Consistent

Has your organization influenced, or is your organization attempting to influence their position?
We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)
Electricity Canada advocates for rational climate change policy with the Canadian federal government as it relates to the electricity sector.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)
0

Describe the aim of your organization's funding
<Not Applicable>

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?
Yes, we have evaluated, and it is aligned

C12.4

(C12.4) Have you published information about your organization's response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Publication
In mainstream reports, incorporating the TCFD recommendations

Status
Complete

Attach the document
TAC2021-Integrated-Report-Feb-23.pdf

Page/Section reference
For details on climate-related disclosure, refer to page M73 of our 2021 Integrated Report.

Content elements
Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment
Climate-related data to be disclosed is informed by climate change questionnaires from CDP and the Task Force on Climate-related Financial Disclosures (TCFD) recommendations. In 2021, we conducted a climate-related scenario analysis that enhanced our alignment with both international sustainability frameworks. Our 2021 climate-related disclosure is part of the MD&A in our Integrated Report and is structured as per TCFD (see alignment table on page M87 of our 2021 Integrated Report). TransAlta monitors and reports on 80+ sustainability performance metrics, including the reporting year and two trailing years for cross comparison. Climate-related metrics include resource or energy use, GHG emissions and air emissions, which are verified by 3rd party auditors. GHG emissions data for scopes 1 and 2 follow the accounting and reporting standards of the GHG Protocol. We adopt guidance from the Global Reporting Initiative (GRI) and Sustainability Accounting Standards Board (SASB) requirements for 'Electric Utilities and Power Generators'. In 2021, TransAlta disclosed 16 sustainability targets in support of the United Nations Sustainable Development Goals (UN SDGs) and the Future-Fit Business Benchmark, of which four are related to climate change. TransAlta is committed to decarbonizing our energy generation and to accelerating clean energy growth. We believe we can make a greater positive impact on UN SDG 7 "Affordable and Clean Energy" and SDG 13 "Climate Action", while supporting several other SDGs. Progress towards our climate-related targets is disclosed using qualitative and quantitative data (percentage of target met).

C15. Biodiversity

C15.1

(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity	Scope of board-level oversight
Row 1	Yes, both board-level oversight and executive management-level responsibility	TransAlta's Governance, Safety and Sustainability Committee (GSSC) assists the Board in fulfilling its oversight responsibilities with respect to the Company's monitoring of environmental regulations, public policy changes and the development of strategies, policies and practices for the environment.	<Not Applicable>

C15.2

(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments	Initiatives endorsed
Row 1	Yes, we have made public commitments and publicly endorsed initiatives related to biodiversity	Commitment to not explore or develop in legally designated protected areas Commitment to respect legally designated protected areas Commitment to avoidance of negative impacts on threatened and protected species Other, please specify (We have made biodiversity-related public commitments as part of environmental compliance and/or permitting.)	SDG

C15.3

(C15.3) Does your organization assess the impact of its value chain on biodiversity?

	Does your organization assess the impact of its value chain on biodiversity?	Portfolio
Row 1	Yes, we assess impacts on biodiversity in both our upstream and downstream value chain	<Not Applicable>

C15.4

(C15.4) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity- related commitments
Row 1	Yes, we are taking actions to progress our biodiversity-related commitments	Land/water protection Land/water management Species management Education & awareness

C15.5

(C15.5) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	Yes, we use indicators	Pressure indicators Response indicators Other, please specify (Negative impacts to biodiversity are quantified/disclosed as 'Significant environmental incidents' in our Integrated Reports. Pressure/response indicators are disclosed in regulatory filings, e.g., bat mortality resulting from our wind operations.)

C15.6

(C15.6) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located
In mainstream financial reports	Content of biodiversity-related policies or commitments Governance Impacts on biodiversity	Biodiversity-related issues are publicly available on TransAlta 2021 Integrated Report, including Board oversight, biodiversity impacts of our value chain (Pages M105 to 106) and environmental incidents (Page M107). TAC2021-Integrated-Report-Feb-23.pdf
In mainstream financial reports	Details on biodiversity indicators	We seek to accurately evaluate the level of significance to biodiversity following an incident. Impacts to biodiversity are disclosed as 'Significant environmental incidents' in accordance with our Total Safety Management System. TAC2021-Integrated-Report-Feb-23.pdf
In other regulatory filings	Impacts on biodiversity	Monitoring of pressure/response indicators is required, for example, as part of wind power plant applications. In Alberta, we report on pre- and post-construction bird and bat monitoring data to determine risks associated with wind developments.

C16. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

No further information.

C16.1

(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	President and Chief Executive Officer	Chief Executive Officer (CEO)

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

Please confirm below

I have read and accept the applicable Terms