

Alberta Environment and Parks

Design of Systems to Manage the Climate Leadership Plan and Adaptation

About This Audit

Alberta's emissions in context

Climate change is a global challenge, caused by both human activities and natural factors. A changing climate due to greenhouse gas emissions¹ is likely to have consequences for Albertans, the economy and the environment. The world has already witnessed some of the impacts of climate change, such as increased frequency of heat waves, wildfires, droughts and flooding.

Under the Paris Agreement of the United Nations Framework Convention on Climate Change, 174 countries—including Canada—have committed to setting emissions reduction targets. To meet these targets, governments are actively developing policies and implementing programs to reduce emissions and to adapt to the impacts of climate change. The Government of Canada has set a national target to reduce greenhouse gas emissions by 30 per cent below 2005 levels by 2030.

As with most policy decisions, there are benefits and costs associated with government seeking to limit and reduce emissions and adapt to a changing climate. As Alberta currently has the highest emissions and the second-highest emissions per capita of any province, actions in the province will considerably impact the Government of Canada in achieving its goals related to climate change under the Pan-Canadian Framework.^{2,3}

Alberta government's response to climate change

The Alberta government first began to take action on climate change in 2002 when it released a climate change plan and a target to reduce emissions.⁴ In 2008, the government released a climate change strategy focused on reducing emissions by implementing carbon capture and storage, using energy more efficiently and producing cleaner energy.⁵ The government never reported to Albertans on the costs or results of either the 2002 plan or the 2008 strategy.

With the November 2015 release of the Climate Leadership Plan (CLP), the government committed to taking action on emissions in the context of an economy that both uses and produces significant amounts of fossil fuels. The CLP is an ambitious and complex strategy: it aims to reduce emissions while diversifying the economy and improving the well-being of Albertans. Since the government announced the CLP in late 2015, significant policy changes have been made and programs rolled out, led by many government departments and coordinated by the Alberta Climate Change Office (CCO) in the Department of Environment and Parks.

Under the CLP, the government implemented an economy-wide price on carbon that is

¹ Greenhouse gases are gases in the atmosphere that warm the earth by trapping solar radiation. Increases in greenhouse gases, which include water vapour, carbon dioxide and methane, are a primary cause of climate change.

² Released in December 2016, the Pan-Canadian Framework on Clean Growth and Climate Change is the national plan to meet the 2030 target. The framework outlines federal measures to reduce greenhouse gas emissions, including carbon pricing, a clean fuel standard, and regulations to reduce methane emissions from the oil and gas sector. It also sets out potential federal, provincial and territorial collaborative mitigation measures

³ Based on emissions data presented in *National Inventory Report 1990–2015*, Canada's 2030 emissions target is 523 Mt (https://www.canada.ca/en/environment-climate-change/services/climate-change/greenhouse-gas-emissions/sources-sinks-executive-summary.html). Based on the *2016–2017 CLP Progress Report*, page 8, Alberta's 2030 emissions with the CLP are expected to be 254 Mt (or 222 Mt with potential reductions from innovation). Therefore, Alberta's 2030 emissions are expected to be 49 per cent (or 42 per cent) of Canada's 2030 emissions.

⁴ Government of Alberta. *Albertans & Climate Change: A Plan for Action*, 2002. The plan listed initiatives and actions in the areas of emissions reductions, government leadership, energy conservation, carbon management, technology and innovation, enhancing carbon sinks, and adapting to climate change. The plan set a target for reducing emissions intensity by 50 per cent by 2020, equivalent to reducing emissions by 10 per cent below 1990 levels.

⁵ Alberta's 2008 Climate Change Strategy. http://aep.alberta.ca/forms-maps-services/publications/documents/ AlbertaClimateChangeStrategy-2008.pdf.

expected to generate over \$5 billion from 2017 to 2020.6 The government committed to fully reinvesting the revenue into Alberta's economy.

The government sets the policies under the CLP and decides how the carbon revenue is spent. The CCO is responsible for leading the coordination of both the CLP's implementation and the development of the government's adaptation strategy.

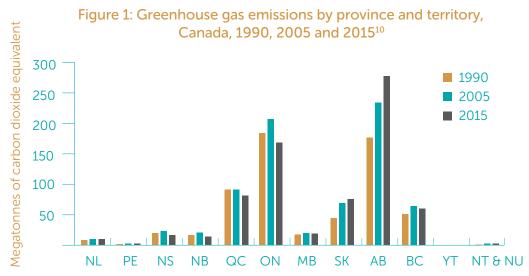
Previous performance audits related to climate change

We have previously audited the systems at the Department of Environment and Parks for managing the 2008 climate change strategy.⁷ The objective of that audit was to determine whether the department had systems in place to develop and successfully manage the 2008 climate change strategy. We concluded that the systems required improvement.

We made three recommendations to the department and repeated them in 2012⁸ and 2014⁹ because of unsatisfactory progress. Because these recommendations were made in direct relation to the 2008 climate change strategy, for the purposes of our current audit we decided to close off the outstanding recommendations and examine planning, monitoring and reporting systems in the context of implementing the CLP.

Collaborative audit

Canada's provincial auditors and the Office of the Auditor General of Canada partnered to examine and report on progress on climate change action within their governments. This audit report contributes to that project.



Note: Emission levels for some years have been revised in light of improvements to estimation methods and availability of new data.

Source: Environment and Climate Change Canada (2017) National Inventory Report 1990-2015: Greenhouse Gas Sources and Sinks in Canada.

⁶ The carbon price has two components: a carbon levy applied to all transportation and heating fuels that emit greenhouse gases when burned, and carbon pricing applied to large industrial facilities.

⁷ Report of the Auditor General of Alberta—October 2008, pages 93–107.

⁸ Report of the Auditor General of Alberta—October 2012, pages 35-40.

⁹ Report of the Auditor General of Alberta—July 2014, pages 39-47.

¹⁰ https://www.canada.ca/en/environment-climate-change/services/environmental-indicators/greenhouse-gas-emissions/province-territory.html.

Audit Objective and Scope

Our audit objective was to determine whether the Department of Environment and Parks implemented well-designed systems and processes¹¹ to lead and coordinate:

- the implementation of the CLP, including planning, monitoring progress and reporting on results
- the development of Alberta's approach to adapting to climate change risks

A second phase of the audit, planned for late 2018, will examine the effectiveness of the department's systems to plan, monitor and publicly report to Albertans on the implementation and results of the CLP and adaptation.¹²

We developed the criteria for this audit using the department's responsibilities and relevant criteria from our previous audits on climate change. The department's management acknowledged the suitability of the criteria used in the audit.

Our audit focused on the audit criteria related to the areas where the department's systems have been implemented, except for (i) the analyses of the costs and benefits at the program proposal phase, (ii) the performance measurement system, and (iii) the governance structure. We will examine those areas in the second phase of our audit. For climate change adaptation, we examined the current status of the strategy development and the design of systems that currently exist, in view of the department's claims that the adaptation strategy development is in an early stage.

Audit Responsibilities

The Department of Environment and Parks, through the CCO, is the lead on coordinating government climate change mitigation and adaptation. Our responsibility is to express an independent conclusion on whether the Department of Environment and Parks has made progress in leading and coordinating both the implementation of the CLP and the government's adaptation strategy.

We conducted our audit in accordance with Canadian Standard on Assurance Engagements 3001 issued by the Auditing and Assurance Standards Board (Canada). The Office of the Auditor General applies Canadian Standard on Quality Control and, accordingly, maintains a comprehensive system of quality control, including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements. The Office complies with the independence and other ethical requirements of the Chartered Professional Accountants of Alberta Rules of Professional Conduct, which are founded on fundamental principles of integrity and due care, objectivity, professional competence, confidentiality and professional behaviour.

¹¹ Evaluating the design of systems intends to identify key controls and determine whether they are capable of mitigating the relevant risks. The controls must be appropriately designed, implemented and consistently followed in order to effectively mitigate the risks. Improperly designed controls cannot be effective, and they represent a system deficiency.

¹² Control is effective when it successfully mitigates the relevant risks.

What We Examined

Our audit focused on the responsibilities of the CCO within the Department of Environment and Parks. We interviewed the responsible officials at the CCO and other ministries implementing the CLP programs, reviewed and analyzed documents, and examined the CCO's systems and processes.

We conducted our field work between April 2017 and December 2017, and substantially completed the audit in December 2017.

Conclusion

Except for the findings described below, we conclude that, as of December 2017, the Department of Environment and Parks had implemented adequate systems to lead and coordinate the implementation of the CLP, including planning, monitoring progress and reporting on results.

The department implemented multiple tools to plan and deliver on the commitments under the CLP. However, the CCO lacks an overall implementation plan for the CLP and for individual initiatives and programs. The lack of such a plan could negatively impact the cost-effective implementation of the CLP going forward. The systems used to monitor and report on progress should be more rigorous and efficient in order to ensure that management has reliable and complete information to track progress and identify required corrections. The first progress report on the CLP contains detailed and important information, but future reports should more clearly and completely describe the actual and expected costs of the CLP and its initiatives and programs.

Alberta's adaptation strategy is still in development and has not been approved by the government. As a consequence, the department does not have adequately designed systems for adaptation. We will examine the department's systems once, and if, the government adopts an adaptation strategy.

We acknowledge that the government tasked the department with implementing a number of significant policies and programs, while at the same time the department had to develop the necessary processes to carry out its responsibilities. To ensure that the desired results of the CLP and the underlying initiatives and programs are achieved, well-designed and effective processes will be key.

Why This Conclusion Matters to Albertans

Failing to reduce greenhouse gas emissions and take measures to adapt to climate change may endanger lives and increase costs to Albertans. The department leads and coordinates the government's actions to mitigate those risks. Without well-designed systems to plan, monitor progress and report on the results of the efforts to reduce emissions and adapt to climate change, the desired results may not be achieved cost effectively or at all.

Findings and recommendations

The Climate Leadership Plan

Context

The Climate Leadership Plan's areas of focus

The Government of Alberta released the CLP in November 2015. The CLP includes four main policy measures:

- an economy-wide carbon price13
- the phase-out of emissions from coal-generated electricity and an increase in renewable electricity to 30 per cent of generation by 2030
- a 100-megatonne¹⁴ cap on annual emissions from the oil sands
- a reduction in methane emissions from upstream oil and gas by 45 per cent from 2014 levels by 2025

The CLP aims to reduce greenhouse gas emissions while diversifying the economy, creating jobs, and protecting health and the well-being of communities. These desired outcomes are being enabled through the use of revenues from the carbon pricing to fund initiatives and programs under CLP action areas. ¹⁵ Implementation of these initiatives and programs is led by various ministries across the Government of Alberta, including the Department of Environment and Parks. As of December 2017, there were about 70 initiatives and programs underway. ¹⁶ For the purposes of this report, we refer to all initiatives and programs as simply *programs*. See Appendix A for the structure of the CLP.

Roles and responsibilities

The CCO leads and coordinates the implementation of the CLP. Its responsibilities include developing and implementing the systems to monitor, evaluate and report on the CLP's results and costs. The CCO's role also includes implementing some of the programs under the CLP.

The government established a Climate Leadership Policy Committee to make recommendations to Cabinet on programs that lead ministries put forward under the CLP.¹⁷ Before lead ministries bring matters to the committee, a cross-ministry committee of deputy ministers and a separate cross-ministry committee of assistant deputy ministers review the proposals to ensure awareness and alignment of proposed programs. The CCO coordinates these processes and ensures that advice is relayed to lead ministries.

¹³ Carbon pricing places a price on each tonne of greenhouse gas emitted.

¹⁴ A megatonne is a unit of measure for describing greenhouse gas emissions. One megatonne of carbon dioxide is roughly equivalent to what 250,000 cars produce each year.

¹⁵ No assertion is made in this report that the purposes for which the carbon revenue is being collected, articulated in s.3 (2) of the Climate Leadership Act, have been or are being satisfied.

¹⁶ As of October 2016, the 13 key initiatives were bioenergy, carbon levy, coal communities, coal transition, energy efficiency, green infrastructure, indigenous communities, innovation and technology framework, methane, micro and small-scale generation, oil sands emissions limit, output based allocations, and renewable electricity program.

¹⁷ The government disbanded the Climate Leadership Policy Committee in December 2017, and lead ministries now use standard government processes and committees.

Criteria: The standards of performance and control

Planning

The department should:

- prepare an overall implementation plan for the CLP, with outcomes, planned actions, expected results, required resources and associated timelines
- corroborate through modelling and other analysis that the actions chosen will result in achieving the desired outcomes of the CLP
- confirm that the responsible departments complete analyses of the costs and benefits of actions planned under the CLP¹⁸
- confirm that the responsible departments develop, for each action, implementation plans that align with the overall implementation plan
- lead and coordinate the development of performance measures with targets, for each action and policy area, and for the CLP overall
- define roles and responsibilities, a coordination mechanism, and a governance and accountability structure, including processes to obtain sufficient, appropriate and timely reporting from responsible departments

Measuring and Monitoring

The department should:

- confirm that the responsible departments measure and monitor the actual results, identify corrective actions and implement quality controls
- lead and coordinate the evaluation of the actions and overall results
- implement processes to verify the actual results

Reporting

The department should coordinate regular and timely reporting on the CLP, including:

- expected and actual costs and benefits¹⁹
- progress toward the expected benefits
- analysis of cost effectiveness
- implementation changes and corrective actions

Our audit findings

Key Findings

- The CCO is not maintaining an overall implementation plan for the CLP, and only some lead ministries have implementation plans for programs.
- Oversight by senior management and Cabinet supported implementation of the CLP.
- The CCO implemented processes to monitor the progress of programs, but those processes are not sufficiently rigorous or efficient.
- The CLP progress report contains important and detailed information; however, clear and complete information on the cost of the CLP is missing.

¹⁸ The analyses should consider the social, economic and environmental costs and benefits

¹⁹ The costs and benefits should include those to the Government of Alberta and to Albertans.

No overall implementation plan and no individual implementation plans for all programs

The CCO created an implementation plan for the CLP in October 2016, but the plan and its subsequent updates lacked many of the key components of a good plan. The plan did not include:

- an overall emissions target, or rationale for not having one
- expected results
- clear roles and responsibilities, and mechanisms for coordination
- significant areas of risk
- mechanisms to monitor and evaluate progress

The plan did include:

- expected outcomes for the four main policy areas
- planned deliverables with timelines, and forecasted funding for key actions
- information on governance, including some roles and responsibilities

By September 2017, the CCO deemed the plan no longer useful as a management tool and stopped using it. The CCO therefore no longer has an active overall implementation plan for the CLP. Further, the CCO has not clearly communicated that lead ministries should consistently create implementation plans for the 70 programs currently underway. Based on our examination, not all lead ministries have implementation plans for the programs they are responsible for.

There is consequently an increased risk that the CCO and lead ministries cannot effectively plan and implement individual programs, and the CLP overall. Management told us that the fast pace of implementing programs and the time needed to update an overall implementation plan do not justify the benefits of maintaining the plans.

Despite lacking an overall implementation plan, the CCO developed planning tools such as the CLP outcome framework, which articulates what the CLP aims to achieve and its areas of focus. Procedures for reporting the progress of programs and the associated roles and responsibilities are currently defined across multiple internal documents.

Oversight by senior management and Cabinet supported implementation of the CLP

A Cabinet committee was created to support the implementation of the CLP. Given the cross-ministry involvement in implementing the climate change programs, committees of deputy ministers and assistant deputy ministers were also formed to review advice to the Cabinet committee and monitor implementation activities.

Processes to monitor progress are not sufficiently rigorous or efficient

The CCO uses a tracking system as the primary monitoring tool for the CLP. Presently, the system tracks some information about programs—specifically, planned deliverables and their expected completion dates. However, more detailed information, such as planned and actual costs for programs, is tracked outside of the system. As a result, there is no consolidated tracking system that contains all the information needed to effectively monitor and report on progress for all CLP programs.

The limited nature of the information in the tracking system has consequences for the efficiency and effectiveness of the CCO's monitoring:

- The monthly reports that are generated from the system provide incomplete information on a program's status. The reports would be more useful if they showed whether programs are on track and achieving the expected results (such as expected emissions reductions) and showed the cost of each program.
- The CCO had to devote extensive time and effort gathering the information required for an update to the committee of assistant deputy ministers and the 2016–2017 CLP progress report (discussed below) because the necessary information was not in the system.

We did note some deficiencies in how ministries are reporting information in the system—deficiencies that could impact the timeliness, accuracy and completeness of information used to monitor progress. Specifically, lead ministries did not always update programs' status, in some cases allowing three months to pass before providing an update. Further, we found that expected completion dates for deliverables were, in a few cases, modified in the system when ministries were not meeting them, possibly distorting the programs' status.

Clear and complete information on the cost of the CLP is missing

In December 2017, the government released the first progress report on the CLP.²⁰ The report contains extensive important information about the CLP and is a significant step forward in public reporting on climate change efforts.

The report includes overall expected benefits, key policies and action areas, and the programs' 2016–2017 actual costs and achievements. For example, in each of the action areas (e.g., renewable energy), the report discloses the amount of 2016–2017 funding, key programs, jobs supported, and the expected emission reductions to 2020 from dollars spent to date.

The progress report also includes the overall expected emissions for Alberta to 2030 based on implementation of the CLP in conjunction with federal policies.

Achieving the benefits of the CLP comes with associated investments and costs, both to the government and the broader public. While the report shows the expected emission reductions to 2030, it does not clearly state the expected and actual cost of the overall CLP, and it does not state for each program the expected cost needed to achieve those reductions.

A progress report should inform Albertans about the costs associated with the desired results. White total expected costs to Albertans and the government have been reported for significant policy initiatives in various ways through press releases, government websites and other publications, that collective information has not been brought together in the progress report. As a result, it is difficult to get a full picture of the total costs and benefits. The current design of the progress reporting needs to change to provide ongoing information on the total costs and benefits.

The Climate Change and Emissions Management Act contains a legislated target for emissions. ²¹ However, the CLP does not include this target or any other target for overall emissions. The progress report does not explain why an overall target is no longer being used as part of the evaluation of the province's climate change actions. Further, the progress report does not acknowledge that a legislated target currently exists. Therefore, it is unclear whether the government still uses this target to measure the CLP's success. The report describes the targets associated with the phase-out of emissions from coal-generated electricity and increased electricity from renewable electricity sources, and also describes the targets for emissions from the oil sands and from methane. ²²

The progress report contains Alberta's emissions projected to 2030 under several scenarios. The annual emissions with the CLP are expected to be 17 Mt less by 2020 and 63 Mt less by 2030 compared to the emissions trends predicted by the Government of Canada. The report also includes forecasted emission reductions for programs. The CCO reviewed these forecasts, but only when lead ministries requested the review. The CCO provided general guidance to lead ministries on how to forecast the reductions but has not determined which methodologies are appropriate. In the second phase of our audit in 2018, we will examine whether lead ministries completed emission reductions forecasts as part of an overall analysis of the program's expected costs and benefits.

²⁰ https://www.alberta.ca/assets/documents/CLP-progress-report-2016-17.pdf.

²¹ The target for Alberta is a reduction by December 31, 2020 of specified gas emissions relative to Gross Domestic Product equal to or less than 50 per cent of 1990 levels. *Climate Change and Emissions Management Act*, s. 3(1).

²² Page 5 of the Climate Leadership Plan Progress Reports 2016–2017 states the following targets: (i) pollution from coalgenerated electricity is zero, and 30 per cent of electricity produced is from renewable energy sources, both by 2030, (ii) annual oil sands emissions are less than 100 megatonnes, by 2017, and (iii) annual methane emissions are decreased by 45 per cent from 2014 levels, by 2025. https://www.alberta.ca/assets/documents/CLP-progress-report-2016-17.pdf.

RECOMMENDATION:

Develop and use an implementation plan, improve quality of the monitoring data and report on the total cost

We recommend that the Department of Environment and Parks:

- develop and use comprehensive implementation plans for the Climate Leadership Plan and for each of its programs
- implement efficient processes to sufficiently reduce the risk that the data used to monitor and report on progress is not accurate or complete
- provide clear and complete reporting on the expected and actual costs of programs and the Climate Leadership Plan overall

Consequences of not taking action

An implementation plan is a fundamental and critical planning document. It provides a clear path for any task, and especially one involving a large number of actions, multiple parties and complex interrelationships. Further, it helps ensure that those responsible can demonstrate accountability for their commitments.

The absence of active overall and individual implementation plans creates a risk that the planned actions do not align with the overall objectives, programs are not effectively implemented and their progress is not properly monitored against the plan. As a result, the risk that individual programs and the CLP overall will not achieve their objectives, or achieve them but not cost effectively, is increased.

Without complete and accurate information on the progress of programs, and the CLP broadly, the CCO cannot efficiently and effectively monitor progress and identify the necessary corrective actions.

And without clear and complete reporting on the actual and expected costs and benefits of the CLP, Albertans cannot hold the government accountable for its commitments.

Adapting to the Impacts of Climate Change

Context

To manage the risks from climate change and help protect Albertans, the government needs effective adaptation planning. A prerequisite to developing an adaptation strategy and action plan is knowledge of the effects of climate change on regions and sectors. This knowledge is typically gathered through a risk and vulnerability assessment. An approach that focuses on the highest risks helps ensure efficient and cost-effective climate change adaptation.

There have been several attempts by the Alberta government to assess the risks from climate change and develop an adaptation strategy. In 2008, the government assessed the province's vulnerability to climate change. In 2012, the government commissioned a project to assess risks from climate change to the Alberta government, and to develop measures to mitigate the risks. The government then completed a draft adaptation strategy in May 2013, but the strategy was never finalized or adopted by the government.

Criteria: the standards of performance and control

The department should:

- assess the risks to Alberta from climate change
- develop an adaptation strategy and action plan
- measure, monitor and evaluate progress and publicly report on results
- define and communicate roles and responsibilities, a coordination mechanism and a governance and accountability structure, including processes to obtain sufficient, appropriate and timely reporting from the program participants

Our audit findings

Key Findings

- The department does not have a final or approved adaptation strategy.
- The department was unable to provide evidence that its draft strategy focuses on the risks identified through previous risk assessments.

The government has not developed a strategy outlining the approach for Alberta to adapt to a changing climate. Thus, it remains unclear what adaptation actions the province needs to take to mitigate the risks to human safety, the economy and the environment, and what the costs of those actions will be.

With the release of the CLP, which focuses on climate change mitigation, the government committed to developing an adaptation strategy. In 2016, the CCO commissioned work to compile research from over 300 studies on the risks to Alberta from climate change, and to recommend adaptation strategies for the key areas impacted. The CCO told us that this work will inform the adaptation strategy.

The strategy is still in draft form, and the CCO did not provide a draft to us. Therefore, we were unable to verify whether the approach in the strategy aligns with the risks identified.

The original completion date for the strategy was set at January 31, 2018, but the CCO has now revised it to an unspecified date in 2018. We are not making a recommendation at this time as we plan to evaluate the CCO's adaptation systems if and when the government puts a strategy into place.

Consequences of not taking action

Without establishing an approach for adapting to climate change that is supported by an assessment of climate change risks, the government cannot demonstrate that it understands the risks to Alberta and how it plans to manage them.

Appendix A

Alberta's Climate Leadership Plan

The CLP aims to achieve three outcomes:

Primary outcome:

Lower Carbon Diversified Economy Increased Community Health & Wellbeing

Reduced Greenhouse Gas Emissions

The CLP includes four main policy areas:

Economy-Wide Carbon Price

Target: Implement Carbon Levy at \$20 per tonne from January 2017, and \$30 per tonne from January 2018.

Phase-Out of **Coal-Generated Electricity**

Target: Emissions from coal-generated electricity are zero by 2030.

Target: 30% of electricity produced is from renewable energy sources by 2030.

Oil Sands **Emissions Cap**

Target: Annual emissions from the oil sands are below 100 Mt.

Reducing Methane Emissions

Target: Annual methane emissions from upstream oil and gas are decreased by 45% from 2014 levels by 2025.

The CLP focuses on six areas of action:

Climate Leadership Policy & Legislation

& programs:

- Oil Sands Emissions
- Micro and Small-Scale **Electricity Generation**

Renewable **Energy Program**

- BioenergyEmissions Reduction
- Green Infrastructure Renewable Electricity
- Program

Energy **Efficiency**

Examples of initiatives & programs:

- **Community Energy** Program
- Energy Efficiency
- LED Provincial **Highway Lighting** System Retrofit
- Residential No-Charge **Energy Savings** Program

Clean Technology

& programs:

- Innovalon and Technology Framework*
- LRT Edmonton Southeast Valley Line*

Support & Engagement

Secondary outcomes:

Examples of initiatives & programs:

- Alberta Carbon Conversion
- Technology Centre Innovation and
- Framework* • LRT – Calgary Green Line*
- LRT Edmonton Southeast Valley Line*

Increased Green Skills & Employment

Program investments directly create jobs through implementation, and indirectly through supply and access to clean products and services.

(Source: CLP Progress Report 2016–17)

^{*} Initiatives or programs may contribute to more than one area of action.