



A Progress Report

on Ontario's Cap-and-Trade Program
and Climate Change Action Plan:
Year One



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Climate change is one of the greatest threats the world faces. Until recently, Canada's most populous province had no plan in place to reduce the greenhouse gas emissions that cause climate change. There was no limit on carbon pollution and no price on it either. But that's not the case anymore.

In the spring of 2015, Ontario announced that it would put a price on carbon by implementing a cap-and-trade system. In May 2016, Ontario passed the *Climate Change Mitigation and Low-carbon Economy Act* and set the stage for cap-and-trade. The Act also stipulated that the province must reinvest the revenues from cap-and-trade, estimated at nearly \$2 billion annually, back into programs to reduce carbon emissions, and required that the province draft a Climate Change Action Plan, which was released in June of 2016.

Now that we're is through both the first year of carbon pricing and the first year of the Climate Change Action Plan, it's a good time to take stock of how these policies and regulations are performing.

Ontario is a leading jurisdiction when it comes to efforts to fight climate change. Since 2005, carbon emissions in Ontario are down by 20 per cent.¹ This is largely due to Ontario's leadership on phasing out coal-fired power generation, which other provinces and countries are now emulating, and which will also be required at the national level. But with the coal phase out behind us, the hard work of further reducing greenhouse gas emissions lies ahead.

The province has shown that it is aware of and prepared to face this challenge. In the last two years, Ontario brought in carbon pricing, put a limit on greenhouse gases, legislated carbon reduction targets and introduced a well-funded and comprehensive climate plan. Is it working? And is there any economic fallout? Let's take a look.

This report aims to answer three questions:

Is there any evidence that cap-and-trade has hurt Ontario's economy or cost jobs?

Is there any evidence that cap-and-trade and the Climate Change Action Plan have had an impact on carbon emissions?

How are cap-and-trade and the Climate Change Action Plan progressing?

1) Is there any evidence that cap-and-trade has hurt Ontario's economy or cost jobs?

Macroeconomic modelling done in advance of cap-and-trade's implementation predicted that "the provincial economy as a whole [would be] basically unaffected by the Program."²

It appears that the prediction has come true.

In fact, 2017, the first year of cap-and-trade, was a very good year for job growth and economic growth in Ontario.

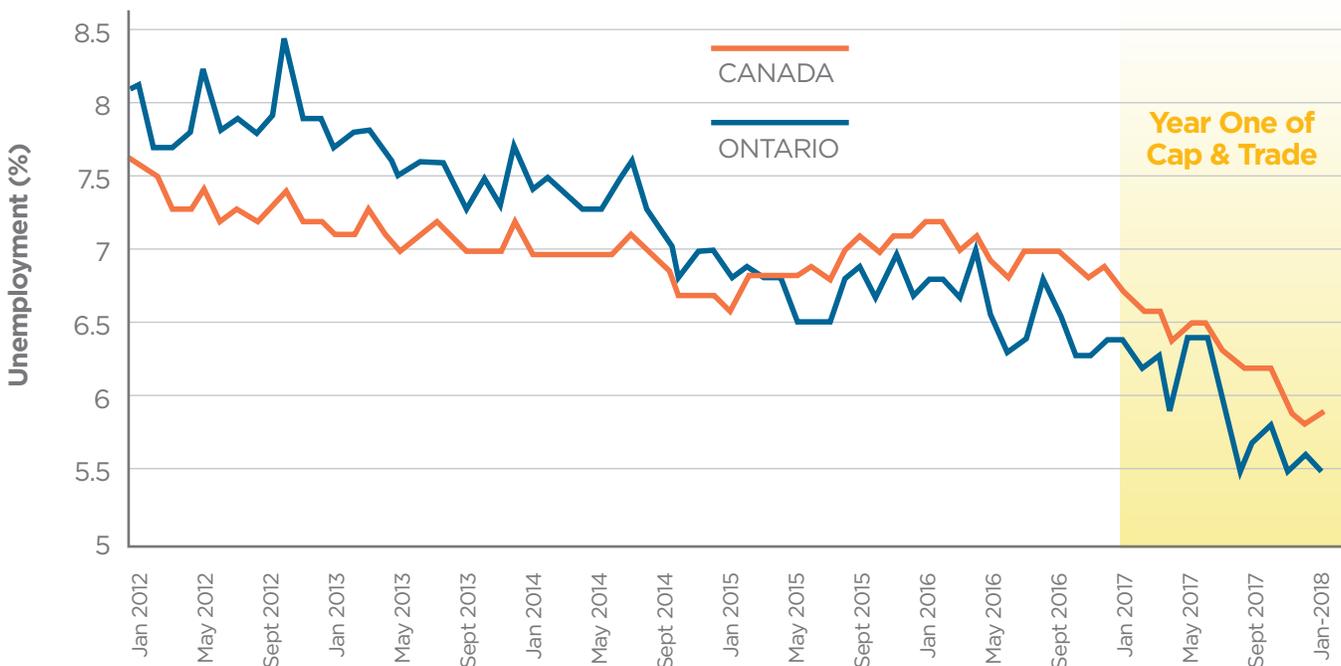
Detractors often suggest that action on climate change will hurt the economy, and "kill jobs," but Ontario's experience doesn't bear this out. Ontario ended 2017 with a very strong economy, and analysts at RBC, TD Bank and the Conference Board of Canada predict this trend will continue. Employment is also up. In January 2018, Ontario's unemployment rate was 5.5 per cent, which is a significant improvement over an unemployment rate

of 6.4 per cent in January 2017, and lower than the national average of 5.9 per cent.³ In fact, Ontario's unemployment rate has been falling since 2012 and 2017 was no exception (see Figure 1).

Rather than shedding jobs, Ontario added 155,000 jobs between January 2017 and December 2017 – the first year of cap-and-trade.⁴ Gains were driven by employment growth in wholesale and retail trade, professional services and manufacturing.

Cap-and-trade doesn't appear to have hurt economic growth either. 2017 marked a 7-year high in Ontario's GDP growth. Forecasters including RBC, TD Bank and the Conference Board of Canada agree that in 2018, economic growth will slow slightly, but will remain strong.

Figure 1: Unemployment in Canada and Ontario, 2012-2018



Source: <https://www.ontario.ca/page/labour-market-report-january-2018>

“Ontario’s economy has been on a solid run in the past four years. It was among the provincial growth leaders in Canada... We project GDP growth to ease from a seven year high of 2.9% in 2017 to 2.1% in 2018. Our outlook for 2019 calls for further deceleration to 1.8%.”⁵

- RBC

“Ontario’s economy continues to run strong. Although the pace of expansion appeared to moderate in the third quarter after a robust first-half performance, growth is ending 2017 on a solid footing.”⁶

- TD Economics

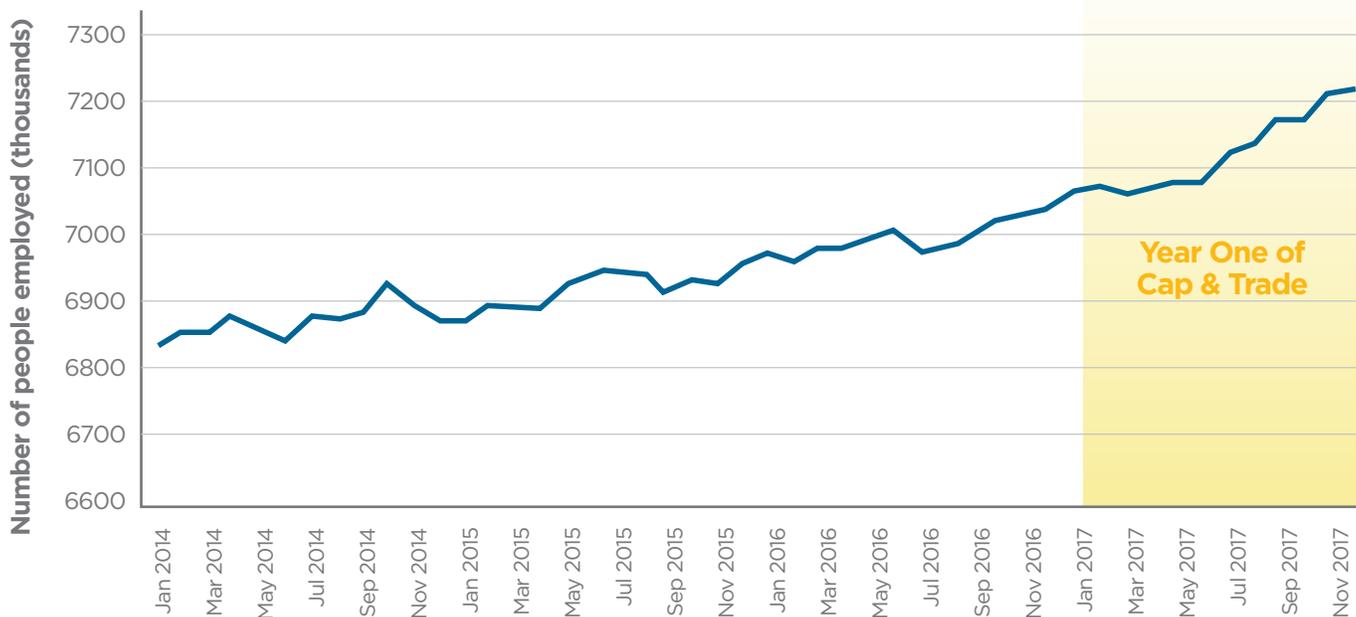
“The good news for Ontario’s economy will continue in the near term, with real GDP growth of 2.8 per cent in 2017 and 2.2 per cent in 2018.”⁷

- The Conference Board of Canada

“Over the past three years, Ontario’s real GDP growth has exceeded that of all G7 countries. The unemployment rate has been below the national average for 31 consecutive months.”⁸

- Province of Ontario Fall Economic Statement

Figure 2: Employment in Ontario (thousands)



Source: Statistics Canada, available at: <https://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/labr67g-eng.htm>

It's notable that the four provinces that have implemented carbon pricing — Quebec, Ontario, Alberta, and B.C. — are the same four provinces who performed best in real GDP growth in 2017, and are expected to be the drivers of the Canadian economy in the year ahead: more evidence that pricing carbon doesn't come at the expense of the economy.⁹

Figure 3: Forecasted GDP growth in Canadian provinces, 2017 and 2018



Source: TD Economics, <https://economics.td.com/pef-forecast-tables>

Indeed, while the revenue raised from cap-and-trade can have a big effect on emissions, the macro economic impacts are relatively small. In 2017, the total value of permits sold was nearly \$2 billion, which is just 0.25 per cent of the province's \$800 billion GDP.¹⁰

There are much larger forces - international trade agreements, the exchange rate, housing starts, interest rates - that impact Ontario's economy. This may explain why the forecasters cited on page 4 didn't even mention cap-and-trade or the Climate Change Action Plan in their economic forecasts.



2) Is there any evidence that cap-and-trade and the Climate Change Action Plan have had an impact on carbon emissions?

It's too early to have a complete picture of carbon emissions for 2017 due to a lag between when emissions are released and when they are officially reported. The draft of Canada's national emissions inventory for 2016 was just published and won't be finalized until mid-2018. Industrial facilities don't have to report their 2017 emissions until June 2018. For that reason, Ontario's Environmental Commissioner's recent report about Ontario's climate plan used 2015 data.

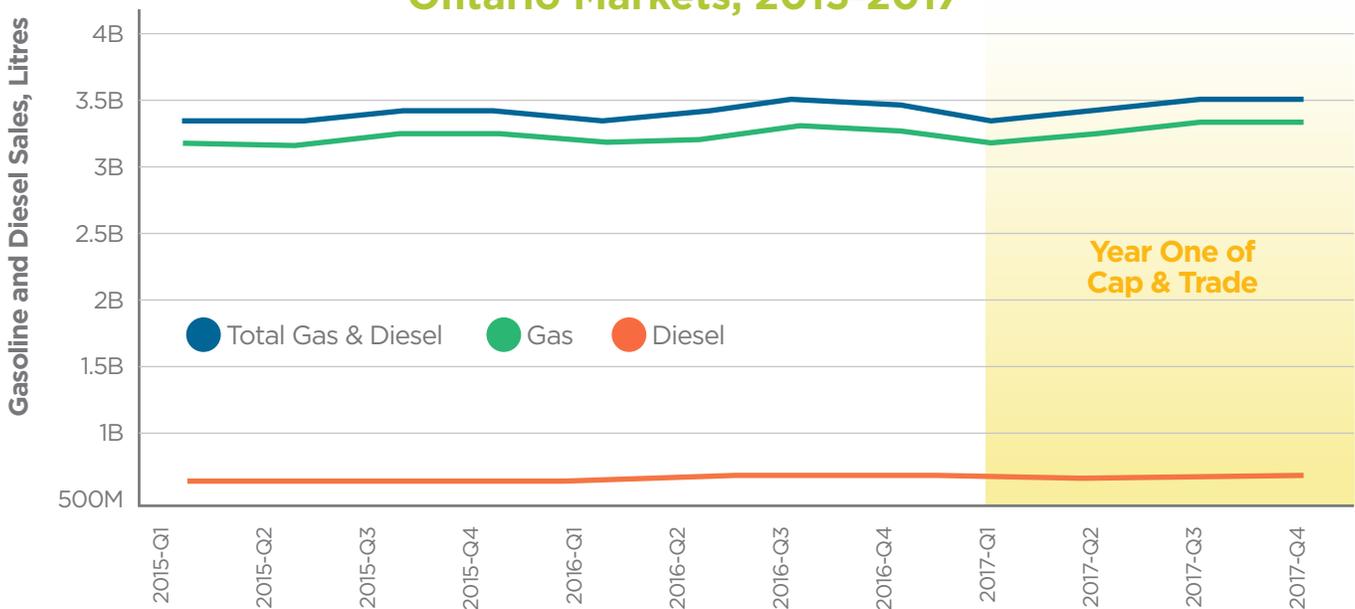
However, energy, primarily from the burning of fossil fuels, is responsible for over 75 per cent of Ontario's greenhouse gas emissions, meaning that fossil fuel use is a good proxy for emissions trends.¹¹ And although we don't have 2017 carbon emissions data, we do have information on gasoline and natural gas sales for 2017.

Also, fuel distributors in Ontario such as Enbridge Gas Distribution or Shell Canada are not eligible for free allowances under the cap-and-trade program, meaning that carbon pricing has now been applied to fuels, which in theory should have had an impact on demand (and sales).

So, has cap-and-trade had an impact on fuel use in Year 1? Not much.

In theory, higher gasoline prices due to carbon pricing should have resulted in lower gasoline demand. But that doesn't appear to be the case, at least so far. Gasoline sales dipped a little in the first quarter of 2017, but rebounded after that. Ontario gasoline sales reached their highest levels ever at the close of 2017 (see Figure 4).

Figure 4: Gasoline Sales in Representative Ontario Markets, 2015-2017



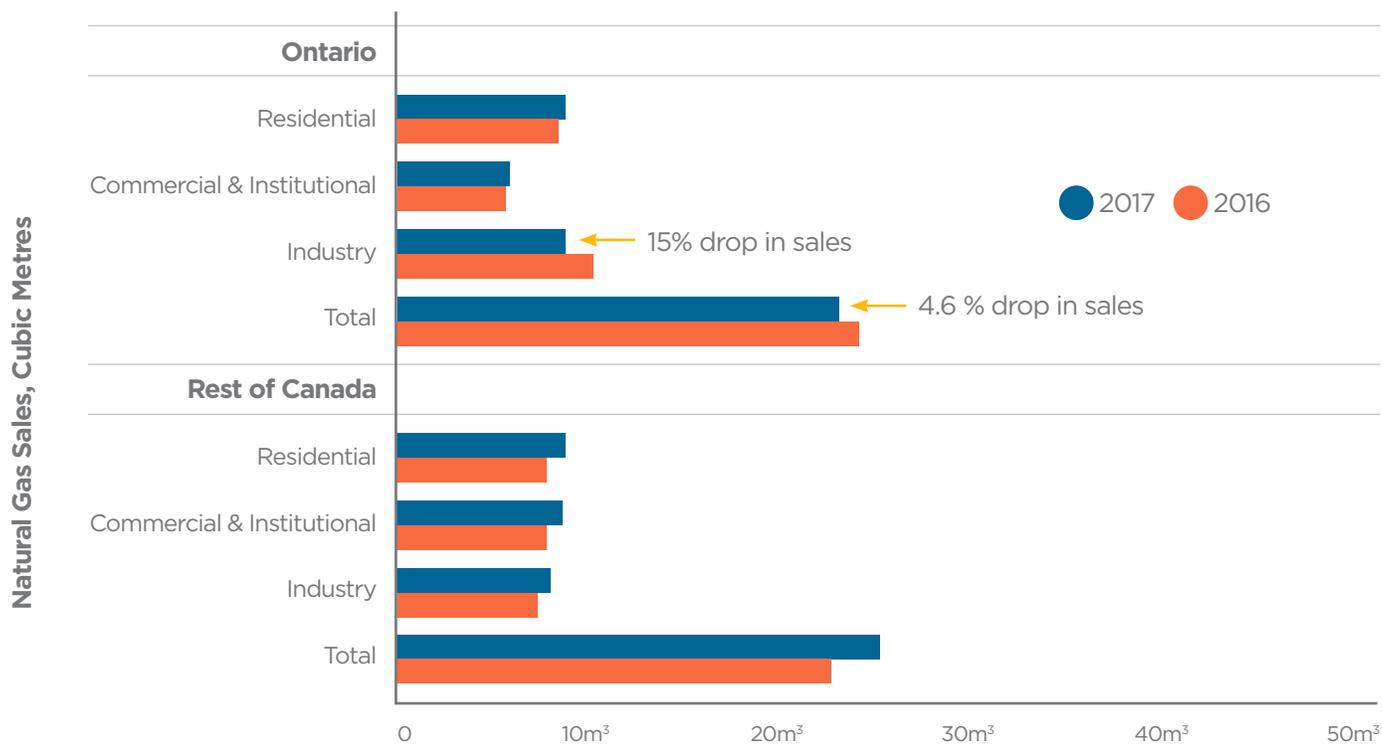
Source: Kent Group Ltd¹²

It's not surprising that gasoline sales weren't affected. Just as Ontario's cap-and-trade program is small compared to Ontario's GDP, the impact of cap-and-trade on gasoline prices is also small. Cap-and-trade added about 4 cents per litre of gasoline; but, gasoline retails for more than \$1 per litre in Ontario and prices at the pump regularly fluctuate by more than 4 cents week over week.¹³ Based on the data in Figure 4, it appears that the price increase caused by cap-and-trade has been too small to have any significant impact on consumer behaviour so far. In

short, cap-and-trade has not yet reduced emissions from the combustion of gasoline and diesel.

The story with natural gas usage is more interesting. **While residential, institutional and commercial use of natural gas in Ontario increased slightly in 2017 over 2016, industrial use of natural gas decreased by over 15 per cent.¹⁴ The result is that overall natural gas use decreased by nearly five per cent in Ontario. This stands in contrast to the rest of Canada, where natural gas use increased by over 10 per cent.¹⁵**

Figure 5: Natural Gas Sales in Canada by sector



Source: CANSIM

Natural gas is used for space heating, and fluctuates seasonally and year-over-year depending on weather. A colder year would naturally lead to increased natural gas use and 2017 was a colder year than 2016, which could explain the increase in residential, commercial and institutional use.¹⁶

In theory, as with gasoline, higher prices should have spurred consumers to use less natural gas. But the impact of cap-and-trade on the price of natural gas is small, just as it is for gasoline. As such, the impact

of cap-and-trade on residential, commercial and institutional consumers also appears to have been small given that gas usage grew less in Ontario than it did in the rest of Canada. Any conservation spurred on by higher prices was more than offset by additional residential, commercial and institutional floor space, and a commensurate increased demand for space heating, which is the primary use for natural gas in these sectors.

The story on industrial usage is another matter.

It's important to note that one reason for the drop in industrial natural gas usage is that Ontario used much less natural gas to produce electricity in 2017 than it did in 2016. In 2016, natural gas and oil generated 9 per cent, or 12.7 terawatt hours, of electricity. In 2017, gas and oil were only used to generate 4 per cent, or 5.9 terawatt hours.

But industrial users had a number of reasons to respond to cap-and-trade.

First, industrial users are compliance entities, meaning they need to understand how cap-and-trade works, create a plan for purchasing permits, and report their emissions. Lower industrial emissions could be a case of 'managing what you measure': these firms are measuring their carbon emissions and the costs of these emissions under cap-and-trade. As a result, they may have adjusted their behaviours to cut emissions and costs. In comparison, most Ontarians don't know much about their emissions profiles and many are unaware that there's a cap-and-trade program in place.¹⁷

A second reason is that there are abundant opportunities for industrial users to pursue cost effective conservation – i.e. energy efficiency upgrades – that are economically beneficial because the cost of the upgrade is more than offset by the resulting energy savings.¹⁸

And cap-and-trade, by putting a price on carbon and by offering financial support for energy efficiency upgrades, increases the cost-effectiveness of energy conservation. This means that, if anything, 2017 conservation savings should be expected to be better than 2016.

Thirdly, in 2016, Ontario allocated \$100 million to reducing industrial emissions from the Green Investment Fund, the “down payment” on cap-and-trade.¹⁹ It's possible that that fund is already beginning work as intended. If so, then we may soon see emissions from the residential sector fall as well, thanks to the many programs aimed at residential natural gas users now on offer from the Green Ontario Fund.²⁰

Or, this could simply be a continuation of an ongoing trend: industrial emissions have been on the decline in Ontario since the mid-1990s. To some extent, this is a result of the changing make-up of Ontario's economy, but it also reflects a gradual decoupling of economic growth from emissions growth.²¹

One thing that should be noted is that emissions reductions are not the result of lower economic activity in manufacturing. **During the first year of cap-and-trade, manufacturing employment increased by 4.5 per cent while carbon emissions appear to have decreased – which could be a sign that Ontario's firms are transitioning to a low-carbon economy.**²²

At the end of year one, cap-and-trade has delivered mixed results with respect to carbon emissions. Pricing appears to have little impact on individuals, but the cap-and-trade regulation may have provoked a response from industrial emitters.

This is not meant to criticize carbon pricing's effectiveness. It is well established that carbon pricing is one of the best tools policy makers have to fight climate change. The damage caused by flooding, extreme heat, or insect infestations, for example, have costs. It makes sense to embed those costs into the price of carbon. But carbon pricing alone doesn't equate to a plan to address climate change – unless that carbon price is very high – on the order of \$150-200 per tonne.²³

We're not aware of any jurisdiction that is only fighting climate change with carbon pricing and that is on track to meet science-based greenhouse gas emissions targets.

Ontario's approach is to complement cap-and-trade with other policies – changes to the building code, a renewable fuel standard, an infrastructure plan that accounts for climate change – and to reinvest the revenue from carbon pricing into emissions reductions programs. In other jurisdictions, such as California, it is these complementary policies and the reinvestment of cap-and-trade revenues that are doing the heavy lifting and reducing carbon emissions.²⁴

Spotlight on California

California is the leading U.S. jurisdiction in the fight against climate change.

Cap-and-trade has been in effect in California since 2012. The state has a number of additional policies in place to drive down emissions and keep compliance costs low under cap-and-trade, including a low-carbon fuel standard, a renewable electricity standard, and a zero emissions vehicle target. The state is on track to beat its 2020 GHG reduction targets and in 2017, California's government agreed to a new set of climate change targets and a set of policies to meet them.²⁵



California's Climate policy objectives over the next decade:

- 40 per cent reduction in GHG emissions by 2030
- 50 per cent renewable electricity
- Doubling energy efficiency savings
- Support for clean cars
- Integrate land use, public transit, and affordable housing to curb auto trips
- Prioritize direct reductions
- Identify air pollution, health, and social benefits of climate policies
- Slash “super pollutants”
- Protect and manage natural and working lands
- Invest in disadvantaged communities
- Strong support for cap-and-trade



3) How are Cap-And-Trade and the Climate Change Action Plan progressing?

In addition to cap-and-trade, it's been more than a year since Ontario's Climate Change Action Plan (CCAP) was published. So, how is the plan progressing?

Ontario's five-year CCAP outlines a variety of policies and programs intended to reduce the province's greenhouse gas emissions. In total, the plan is expected to cost about \$8 billion and deliver 9.8 megatonnes (MT) of carbon emissions reductions by 2020, which would go a long way toward closing the 18 MT gap between Ontario's emissions target and a business as usual scenario, absent from cap-and-trade or other new policies.²⁶ **The plan is funded from revenue raised from the carbon market - not from taxes.**

It's too early to assess whether the policies and programs in the CCAP have delivered any significant carbon emissions reductions. It's also too soon to expect them to have had much impact. But there are signs that progress is being made.

Many of the actions listed in the CCAP with a planned start date of 2017 have been initiated. Others have not. Ontario has made progress on 15 of the 24 actions that were supposed to have been initiated in 2016 or 2017. It's worth noting that the province decided against using cap-and-trade revenue to subsidize electricity prices, one of the proposed

actions in the CCAP slated for 2017, due to an acknowledgment that doing so would not reduce GHGs, as required by law.

Overall, progress has been encouraging, and the province's expected emissions reductions appear achievable by 2020.

Table 1 includes a brief overview of all proposed CCAP action items by the numbers. These items have not been filtered by start date, and are meant to provide a broad overview of progress in the 2016-2020 plan.



Table 1: Progress on implementing actions in Ontario's Climate Change Action Plan

ACTION AREA	PROPOSED OR INITIATED	NOT INITIATED	TOTAL	% PROPOSED/ INITIATED
Transportation	16	6	22	73%
Buildings & Homes	9	8	17	53%
Land Use Planning	10	1	11	91%
Other	14	13	27	52%
Total	49	28	77	64%

Key items which have been implemented since the CCAP was launched include:

- **Establishment of the Green Ontario Fund**, offering incentives for home energy retrofits
- **Introduction of the Electric Vehicle Incentive Program (EVIP)**, offering incentives to promote EV adoption
- **Significant funds committed to cycling infrastructure** and increasing cycling adoption
- **Significant funding committed to retrofit social housing apartment buildings, schools, colleges, and universities** for enhanced energy efficiency
- **Initial progress on amendments to the Ontario's Planning Act** to ensure climate change is taken into consideration when planning decisions are made, and to ensure municipalities include climate change policies in official plans
- **Significant funding through the Municipal GHG Challenge Fund** for GHG emission reduction projects proposed by municipalities

Key items in the CCAP proposed for 2016 or 2017 which haven't been initiated include:

- **Free overnight electric vehicle charging:** The province committed to establish a four-year free overnight electric vehicle-charging program for residential and multi-unit residential customers starting in 2017.
- **Expand Green Button province wide:** Ontario's Green Button program lets Ontarians access and share their data on electricity, natural gas and water consumption in a secure, standardized electronic format.
- **Establish low-carbon content for natural gas:** Ontario committed to introduce a renewable content requirement for natural gas and provide supports to encourage the use of cleaner, renewable natural gas in industrial, transportation and buildings sectors.

For a more extensive list of all government investments into CCAP-related programs or policies, please refer to the Minister's Climate Change Action Plan progress report 2017.



Auctions

The auctions of cap-and-trade permits in Ontario went very well. No market irregularities were reported. And almost all of the permits available for auction have sold, many above the floor price. This indicates that Ontario's program is well designed, and appears to enjoy the confidence of the business community.

All told, 96 per cent of 2017 vintage allowances offered were sold at auction, and 70 per cent of the 2020 vintages* sold. This is a very strong showing given that it was the first year of cap-and-trade, and there have been some doubts cast about the longevity of the system due to political uncertainty.

In January of 2018, Ontario also officially linked its carbon market with the joint Quebec-California market. In the first joint auction following this linkage, 100 per cent of the permits available for 2018 sold.²⁷

Total 2017 Permits sold as per cent of total available



Total 2020 Vintage Permits sold as per cent of total available



● SOLD
● NOT SOLD



* At each auction, Ontario offers a share of the permits for the auction year (e.g. 2017) and a share of permits for a future year (e.g. 2020). The sale of future vintages allows market participants to buy tomorrow's permits at today's prices, which is generally a discounted price given that the floor or minimum price for permits rises each year. A robust interest in future vintages should be seen as confidence in the longevity of cap-and-trade and the carbon market.

Revenue and Spending

The sale of permits at auction raised \$1.9 Billion in 2017, all of which has been deposited into the Greenhouse Gas Reduction Account (GGRA).²⁸ This is more revenue than anticipated thanks to the stronger-than-expected auction results.

Revenue in the GGRA, according to the *Climate Change Mitigation and Low-carbon Economy Act*, must be spent on initiatives that are reasonably likely to reduce, or support the reduction of, greenhouse gas emissions.²⁹ In the view of Ontario's Environmental Commissioner, of the roughly \$1.4 billion that had been allocated as of November 2017, 99 per cent of the spending met that criteria.³⁰

Since November, the government has announced a number of other initiatives including:³¹

- A commitment to \$25 million over the next three years to improve energy efficiency in social housing apartment buildings with less than 100 units
- An investment of over \$214 million in grants and up to \$300 million in interest-free loans to retrofit college and university facilities
- A Cleantech strategy focussed on supporting firms in energy generation and storage, energy infrastructure, bio-products and bio-chemicals, and water and wastewater
- An investment of \$7.25 million in improving energy efficiency in agricultural facilities and \$3.75 million in food manufacturing facilities.
- A Green Commercial Vehicle Program to incentivize the purchase of alternative-fuel vehicles and fuel-saving devices
- Additional rebates for homeowners to complete low-carbon, energy-efficient renovations to their homes

We anticipate that in next year's report, we will be able to report on the results these programs have achieved including any emissions reductions they may have spurred.



ACTION ITEM CASE STUDY: Electric Vehicles

As many of the programs are in preliminary stages, it is difficult to judge their effectiveness at this point. However, there is one program launched earlier in the process that appears to be achieving results: Ontario’s Electric Vehicle Incentive Program and other policies to promote the adoption of electric cars.

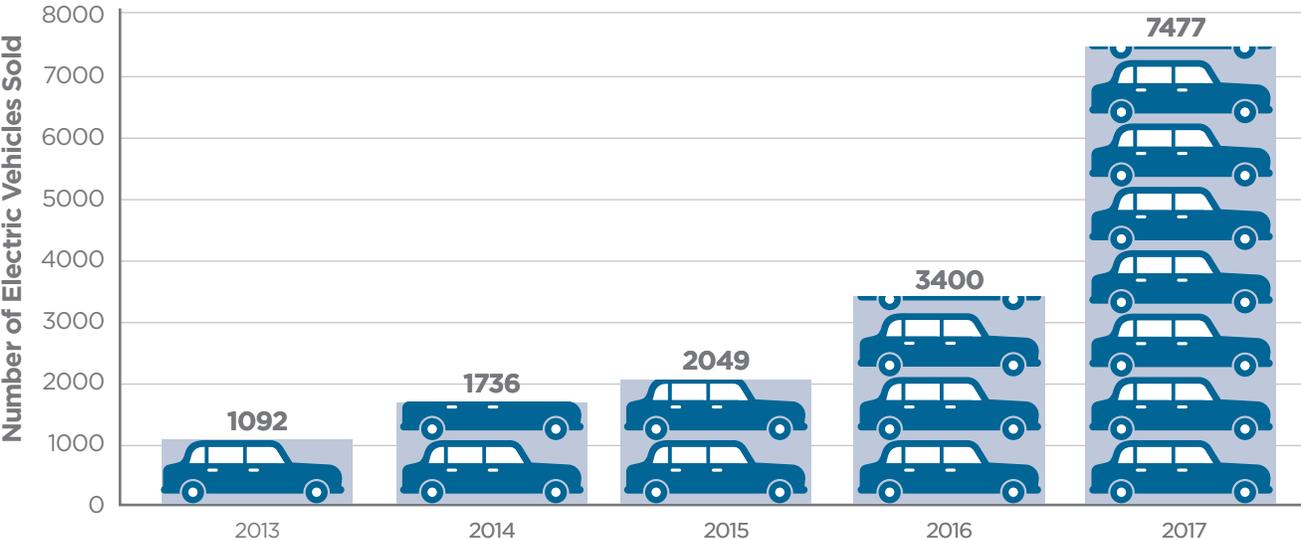
2017 was the first year ever, more electric vehicles (EVs) were sold in Ontario than in any other province. Ontario offers generous rebates for EVs, funded with the revenue from the cap-and-trade program. The province has also been investing in charging infrastructure. It appears that Ontario’s policies to support for EVs are working. 7477 electric and hybrid vehicles were sold in Ontario in 2017, a 120 per cent increase over 2016.³²

An important part of the CCAP plan to increase EV adoption is ensuring charging infrastructure is widely available in Ontario. This got off to a slower-than-expected start, and only about two thirds of the close to 500 planned charging stations originally targeted to be in place by March 2017 were installed by that date. However, programs to increase EV charging opportunities at homes and workplaces

were launched successfully in the past year, with incentive programs for both now underway. Access to charging stations remains a challenge for EV users living in condos and multi-unit residential buildings, as well as those relying on street parking. These challenges will take much longer to address, but promising steps were undertaken in these areas, such as proposed changes to the *Condominium Act* and changes to Ontario’s Building Code that requires charging infrastructure in new buildings.

We should also note that “a four-year free overnight electric vehicle-charging program for residential and multi-unit residential customers starting in 2017,” was promised in the plan but has yet to be implemented. Such a rebate would further incentivize EV adoption.

Ontario Annual Electric Vehicle Sales



Source: Fleetcarma



Conclusion

In summary, cap-and-trade and Ontario's Climate Change Action Plan are off to a good start. The system doesn't appear to have hampered Ontario's economy, the auctions are going well, and the money is being spent in line with the commitments the government has made. The carbon price doesn't appear to have reduced greenhouse gas emissions in the province due to the fact that it is still a very low price, but industrial natural gas users may have responded to cap-and-trade. As well, the CCAP is being implemented, and while it's too early to say whether the programs and policies in the plan are working, electric vehicle adoption more than doubled in 2017, which could be a sign of what's to come.

Going forward, it will be crucial for Ontario to follow through on the rest of the commitments in the Climate Change Action Plan, and to continue to spend cap-and-trade revenues on initiatives that will help individuals and businesses comply with cap-and-trade and transition to a low-carbon economy.

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ABOUT THE CLEAN ECONOMY ALLIANCE

The CLEAN ECONOMY ALLIANCE brings together prominent businesses, clean technology firms, industry associations, labour unions, farmers, health advocates and environmental organizations who have united in support of Ontario's commitment to climate action. Addressing climate change will bring many benefits including cleaner air, improved public health, more jobs, and new markets and business opportunities in the global clean economy.

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