

# COMPACT OF STATES AND REGIONS

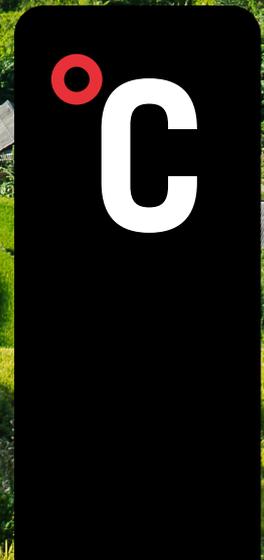
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IN PARTNERSHIP WITH  CDP  
DRIVING SUSTAINABLE ECONOMIES

# DISCLOSURE REPORT

How leading states, provinces and regions are responding to the Paris Agreement

2016 edition



# THE COMPACT OF STATES AND REGIONS

## IS AT SCALE

**62 STATES**, REGIONS AND PROVINCES HAVE JOINED THE COMPACT OF STATES AND REGIONS REPRESENTING **443 MILLION** CITIZENS, **3.1 GtCO<sub>2</sub>e** IN GHG EMISSIONS AND **US\$12.9 TRILLION** IN GDP, EQUIVALENT TO **17%** OF THE GLOBAL ECONOMY.



### TRACKS CLIMATE PROGRESS

THESE GOVERNMENTS HAVE COMMITTED TO **ANNUAL DISCLOSURE** OF THEIR MITIGATION GOALS.



### CATALYZES CLIMATE ACTION

**18 GOVERNMENTS** ARE OBSERVING THE COMPACT, REFLECTING THEIR COMMITMENT TO DEVELOPING BOTH A GHG REDUCTION TARGET AND A GHG INVENTORY TO TRACK PROGRESS.



### HIGHLIGHTS AMBITION

DISCLOSING GOVERNMENTS WILL REDUCE THEIR PER CAPITA CARBON INTENSITY BY ROUGHLY **65%** BY MID-CENTURY. NEARLY A **FIFTH** OF GOVERNMENTS WITH 2020 REDUCTION GOALS HAVE ALREADY MET THEIR TARGET.



### SHOWCASES ACTION

A TOTAL OF **1,299** INDIVIDUAL CLIMATE ACTIONS WERE DISCLOSED ACROSS TEN ECONOMIC SECTORS TO REDUCE EMISSIONS AND ENABLE THE TRANSITION TO LOW CARBON ECONOMIES.

**“THE FIGHT AGAINST CLIMATE CHANGE CANNOT SIMPLY BE A ‘TOP-DOWN’ STRATEGY - CLIMATE CHANGE SHOULD ALSO BE TACKLED USING A BOTTOM-UP APPROACH. IT IS THEREFORE ON US - THE STATES AND REGIONS AROUND THE WORLD - TO INCORPORATE CLIMATE ACTION IN ALL ASPECTS OF LOCAL GOVERNANCE. IN NORTH RHINE-WESTPHALIA, WE REACHED A MAJOR MILESTONE BY PASSING OUR FIRST CLIMATE PROTECTION PLAN IN 2015 WITH 220 MEASURES FOR CLIMATE CHANGE MITIGATION AND ADAPTATION. THE CLIMATE GROUP’S STATES & REGIONS ALLIANCE PROVIDES US WITH A PLATFORM THAT ON THE ONE HAND, MAKES REGIONAL CLIMATE ACHIEVEMENTS AND KNOW-HOW AVAILABLE TO OTHER REGIONS WORLDWIDE AND ON THE OTHER HAND, GIVES THE REGIONS A STRONG VOICE ON A GLOBAL PLATFORM. THE COMPACT OF STATES AND REGIONS IS A POWERFUL INITIATIVE THAT ILLUSTRATES TRANSPARENTLY HOW MUCH REGIONS CAN CONTRIBUTE TO REDUCING EMISSIONS.”**

- Johannes Rimmel, Minister for Climate Protection, Environment, Agriculture, Conservation and Consumer Protection, North Rhine-Westphalia



# CONTENTS

## Table of contents

<b>Foreword by Patricia Espinosa, Executive Secretary, United Nations Framework Convention on Climate Change</b>	<b>1</b>
<b>CEO foreword by Paul Simpson, CDP and Damian Ryan, The Climate Group</b>	<b>3</b>
<b>Disclosing governments at a glance</b>	<b>4</b>
<b>1. Fulfilling the Paris Agreement</b>	<b>6</b>
Transparency	6
Strong engagement from states, provinces and regions	7
Ambitious commitments	9
<b>2. Determining the level of ambition: state and regional climate targets</b>	<b>14</b>
Cutting regional greenhouse gas emissions	14
Modelling decarbonization pathways	21
Reducing sectoral emissions	22
Increasing the share of renewable energy	24
Reducing energy demand	27
<b>3. Walking the talk on targets</b>	<b>30</b>
Progress towards GHG emissions reduction targets	30
Progress through dedicated action	38
The road ahead	41
<b>List of figures and tables</b>	<b>42</b>
<b>Acknowledgements</b>	<b>42</b>
<b>About The Climate Group and CDP</b>	<b>43</b>

# FOREWORD

## Foreword by Patricia Espinosa, Executive Secretary, United Nations Framework Convention on Climate Change (UNFCCC)

Combating climate change, within the context of the Sustainable Development Goals (SDGs), is the course the international community and nations have set to secure a better and more prosperous world for citizens everywhere.

It is not going to be easy because the pathways and the destination chosen are profoundly ambitious, requiring urgency, scale, speed and a comprehensive readjustment of how we perceive wealth generation and manage our societies. But equally, we know that inaction is not an option given the comprehensive scientific and economic risk assessments of so many experts.

The good news is that we are off and running—the Paris Climate Change Agreement of 2015 became legal reality on November 4, 2016 and to date over 100 countries have ratified it.

The strength of the Agreement rests not only on action from central governments, but the unprecedented support and growing enthusiasm of business, investors, citizens, cities, states, provinces and regions.

Indeed, collaboration and integration between different levels of governments will be a key to unlocking ever higher levels of climate action and ambition, now and over the years and decades to come.

The Paris Agreement includes the requirement for all 'Parties' to report regularly on their emissions and on implementation efforts under their national climate action plans - or Nationally Determined Contributions (NDCs).

The Compact of States and Regions, which incentivizes states, provinces and regions to report on an annual basis, is providing sound and solid lessons on how the temperature goals of the Agreement - staying well below a 2 degrees' Celsius rise and pursuing efforts to limit it to 1.5 degrees Celsius - can be met.

This annual reporting also provides regular analysis, and will help in identifying both areas of success and where further action is needed.

The Compact of States and Regions already brings together 62 states, provinces and regions, representing over 440 million citizens and 17% of the global economy.

The annual Disclosure Report helps to establish transparency, build trust and ensure that commitments to reduce emissions are turned into concrete actions.

This second edition of the report is powerful evidence of how these governments continue to go the extra mile in adopting bold climate policies and taking ambitious action. It is particularly heartening to see that some states and regions are already targeting net-zero emissions – or what others term climate neutrality – by mid-century.

I would urge more states and regions around the world to join and start disclosing in 2017 and far beyond, to secure a better future for us all. Many of these commitments are showcased on the UNFCCC's NAZCA portal and we look forward to chronicling ever more this year.

This annual Disclosure Report is rapidly becoming the global benchmark for transparency and accountability on climate change mitigation for these crucial enablers of national government action and key actors in their own right.

Let me end with paying tribute to The Climate Group, CDP and others who are making this important contribution possible.





## CEO FOREWORD BY PAUL SIMPSON AND DAMIAN RYAN



Only two years ago, at the 2014 United Nations Climate Summit in New York, we embarked on a journey to provide the first global account of climate change mitigation potential by state and regional governments, and use the power of disclosure to catalyze further mitigation actions. Led by The Climate Group and CDP, the Compact of States and Regions welcomed the first 16 states, provinces and regions just three months later at COP20 in Lima, Peru.

The commitment of these 16 governments marked the start of this initiative that has continued to grow year-on-year, with 62 governments joining by the time of COP22 in Marrakech in November this year. Responsible for over 3 GtCO<sub>2</sub>e (more than the combined emissions of India and Canada) and representing US\$12.9 trillion in GDP, these influential governments have not been shy in taking action. Almost 70% have disclosed region-wide greenhouse gas (GHG) emissions inventories and targets to cut emissions, with an additional 10% disclosing sector specific targets.

The high-level of action that we have seen from state, provincial and regional governments over the past two years has taken place against the remarkable backdrop of the signing and entry into force of the landmark Paris Agreement. In the same way that we saw national governments come forward with Nationally Determined Contributions (NDCs) to cut national GHG emissions, we have seen Compact governments double down on reducing their region-wide emissions and setting further reduction targets; these could be considered sub-national determined contributions. These commitments are a vital step to mitigating climate change, and we would like to thank all the Compact governments included in this report for their engagement, transparency, and dedication to disclosure and action.

This Compact report marks the second in the series. Last year's report was launched in Paris by Governor of California Jerry Brown, Premier of South Australia Jay Weatherill, President of the Basque Country Iñigo Urkullu, Premier of Quebec Philippe Couillard, and First Minister of Scotland Nicola Sturgeon. Scotland also leads a group of governments who have already achieved their 2020 target several years early; an outstanding and inspiring achievement. The report draws on the latest disclosed data to chart the progress of Compact governments in reducing their emissions and taking further climate action. It also uses scenario analysis from the International Energy Agency (IEA) to project the path Compact governments are taking to 2050, and how their journey interacts with the pathways to a 2-degree, 4-degree or 6-degree world.

We are delighted that COP22 in Marrakech reaffirmed the model of shared leadership between countries, cities, companies, states, provinces and regions. Looking ahead to 2017, we would like to call on more governments to commit to transparent annual disclosure. In addition, if you have not yet done so, we invite you to join the Under2 Coalition and commit to ambitious climate action by 2050.

As global non-profits working with states, provinces and regions, we, The Climate Group and CDP, are committed to combining our strengths in convening governments and policy innovation with transformative disclosure and climate analysis, in order to deliver ambitious, meaningful and impactful change. We hope you join us too, as our journey has only just begun.

Paul Simpson, CEO, CDP and Damian Ryan, Acting CEO, The Climate Group.

STATE OR REGIONAL GOVERNMENT	COUNTRY	HEAD OF GOVERNMENT	LAND AREA (KM <sup>2</sup> )	POPULATION	GDP (US\$)
Alberta	Canada	Premier Rachel Notley	661,848	4,249,842	244,522,530,000
Andalusia	Spain	President Susana Díaz	87,597	8,394,246	159,212,162,584
Australian Capital Territory	Australia	Chief Minister Andrew Barr	2,358	400,000	25,249,782,870
Auvergne-Rhône-Alpes*	France	President Laurent Wauquiez	69,711	7,800,000	268,000,000,000
Baden Württemberg	Germany	Minister-President Winfried Kretschmann	36,000	10,600,000	450,000,000,000
Basque Country	Spain	Governor Iñigo Urkullu	7,235	2,173,210	75,321,624,000
Bavaria	Germany	Minister-President Horst Seehofer	70,549	12,600,000	582,599,000,000
Blekinge	Sweden	County Governor Berit Andnor Bylund	2,941	152,757	4,957,350,611
British Columbia	Canada	Premier Christy Clark	944,735	4,683,139	214,753,477,335
Brittany	France	President Jean-Yves Le Drian	27,208	3,273,343	95,000,000,000
California	United States	Governor Edmund G. Brown Jr	423,470	39,300,000	2,500,000,000,000
Cantabria*	Spain	President Miguel Angel Revilla	5,321	582,117	25,456,407,759
Capital Region of Denmark*	Denmark	Chairman of the Regional Council Sophie Hæstorp Andersen	2,561	1,793,000	113,137,000,000
Carinthia	Austria	Governor Dr. Peter Kaiser	9,536	557,418	19,722,628,350
Catalonia	Spain	President Carles Puigdemont i Casamajó	32,108	7,508,106	238,994,000,000
Connecticut	United States	Governor Dannel Malloy	12,997	3,590,886	227,794,000,000
Cross River State*	Nigeria	Governor Prof. Benedict Ayade	21,461	3,737,517	9,292,000,000
Delta State**	Nigeria	Governor Sen. Dr. Arthur Ifeanyi Okowa	18,213	4,112,445	16,750,000,000
Drenthe	Netherlands	King's Commissioner J. Tichelaar	2,639	488,670	1,711,000,000
Emilia-Romagna	Italy	President Stefano Bonaccini	22,453	4,457,115	154,976,610,291
Gujarat*	India	Chief Minister Vijay Rupani	196,000	60,000,000	110,000,000,000
Helsinki-Uusimaa	Finland	Regional Mayor Ossi Savolainen	9,097	1,620,261	85,818,400,000
Hesse	Germany	Minister-President Volker Bouffier	21,114	6,093,888	263,444,000,000
Hidalgo*	Mexico	Governor José Francisco Olvera Ruiz	20,813	2,882,236	11,853,620,400
Jalisco	Mexico	Governor Jorge Aristóteles Sandoval Díaz	78,601	7,350,682	57,888,000,000
Jammu and Kashmir**	India	Chief Minister Mehbooba Mufti	101,387	12,548,926	13,730,000,000
Jämtland	Sweden	County Commissioner Robert Uitto	50,000	127,000	5,000,000,000
KwaZulu-Natal*	South Africa	Premier T. W. Mchunu	94,361	11,000,000	43,900,000,000
La Réunion	France	President Didier Robert	2,504	843,529	19,750,000,000
Laikipia County*	Kenya	Governor Joshua W. Irungu	9,462	440,000	546,000,000
Lombardy	Italy	President Roberto Maroni	23,864	10,002,615	372,230,000,000
Lower Austria	Austria	Governor Erwin Pröll	19,174	1,636,778	68,181,708,800

Manitoba	Canada	Premier Hon. Brian Pallister	649,947	1,282,043	60,732,494,895
Minas Gerais	Brazil	Governor Fernando Damata Pimentel	586,520	20,734,097	144,101,123,595
Minnesota	United States	Governor Mark Dayton	225,181	5,485,238	298,839,000,000
New Caledonia*	France	President Philippe Germain	18,575	268,767	7,875,000,000
New York State	United States	Governor Andrew M. Cuomo	121,883	19,746,227	1,385,776,000,000
Newfoundland and Labrador	Canada	Premier Dwight Ball	405,212	527,756	26,100,000,000
North Brabant	Netherlands	King's Commissioner Wim van de Donk	4,919	2,500,000	116,000,000,000
North Denmark Region	Denmark	Chairman of the Regional Council Ulla Astman	7,933	585,769	25,584,000,000
North Rhine-Westphalia	Germany	Minister-President Hannelore Kraft	34,110	17,540,000	720,000,000,000
Northwest Territories	Canada	Premier Robert R. McLeod	1,183,085	44,291	3,007,303,954
Nouvelle-Aquitaine*	France	President Alain Rousset	84,100	5,867,000	177,384,759,147
Occitanie*	France	President Carole Delga	72,724	5,724,711	150,397,000,000
Ontario	Canada	Premier Kathleen Wynne	1,076,395	13,792,052	614,453,574,363
Oppland	Norway	County Mayor Even Aleksander Hagen	25,190	188,926	677,831,325
Oregon	United States	Governor Kate Brown	255,026	3,970,329	219,600,000,000
Provence-Alpes-Côte-d'Azur	France	President Christian Estrosi	31,400	5,000,000	168,581,250,000
Québec	Canada	Premier Philippe Couillard	1,667,712	8,263,600	294,114,978,900
Rio de Janeiro	Brazil	Governor Luiz Fernando de Souza	43,778	16,461,173	192,024,212,087
São Paulo	Brazil	Governor Geraldo Alckmin Filho	248,222	44,035,304	721,300,000,000
Sardinia*	Italy	President Francesco Pigliaru	24,100	1,663,286	33,256,000,000
Scotland	United Kingdom	First Minister Nicola Sturgeon	78,772	5,300,000	200,000,000,000
South Australia	Australia	Premier Jay Weatherill	983,482	1,688,700	71,079,037,500
South Holland	Netherlands	King's Commissioner Jaap Smit	3,403	3,620,000	137,988,945
Uppsala County*	Sweden	Council Chairman Börje Wennberg	8,209	354,164	17,687,448,000
Valencia**	Spain	President Ximo Puig	23,254	5,113,815	114,599,315,700
Veneto*	Italy	President Luca Zaia	18,407	4,915,123	162,779,100,200
Vermont	United States	Governor Peter Shumlin	24,906	626,138	27,100,000,000
Wales	United Kingdom	First Minister Carwyn Jones	20,761	3,099,086	70,636,800,000
Washington	United States	Governor Jay Inslee	176,477	7,155,334	397,321,000,000
Yucatán*	Mexico	Governor Rolando Zapata Bello	39,524	2,097,175	13,061,872,025

 New disclosure in 2016

\*Observers

\*\*Observers who started disclosing in 2015 and did not update data in 2016

All data current at time of disclosure (April – July 2016)

## FULFILLING THE PARIS AGREEMENT

The Paris Agreement officially entered into force on November 4, 2016. Following years of negotiations, few would have expected the world's most universal and ambitious climate agreement to come into effect in a matter of months. By surpassing expectations, global leaders have inspired millions of citizens across the globe. The deal in Paris marked a watershed moment in the fight against climate change with nearly 200 nations committing to efforts to keep the global temperature increase well below 2 degrees Celsius above pre-industrial levels, and to pursue efforts to limit the temperature increase to 1.5 degrees Celsius<sup>1</sup>.

While the climate talks in Copenhagen in 2009 ended in disappointment, COP21 in Paris was characterized by significant levels of collaboration and compromise. Interestingly, the lessons from the 2009 Climate Change Conference planted the seed for the success story we are witnessing today. Climate negotiators realized that top-down policymaking had to be complimented by a more aspirational approach. The method of asking countries to submit their Intended Nationally Determined Contributions (INDCs) helped to break down the barriers between wealthy industrial nations (the biggest emitters historically) and developing countries. Additionally, the so-called 'non-Party stakeholders' – states, regions, cities, corporates and civil society – played an increasingly fundamental role in securing the Agreement, by illustrating to their national counterparts a refreshing willingness to move towards net-zero emissions' economies. To add to the momentum of this bottom-up drive, the Compact of States and Regions released its first-ever Disclosure Report at the end of 2015. This report was the first to reflect the level of ambition shown by leading states, provinces and regions around the world.

The second edition of the Disclosure Report, exactly one year later, reaffirms the fact that states, provinces and regions are ready to fulfill their responsibilities and achieve the targets set out in the Paris Agreement. By providing an annual account of their commitments, states, provinces and regions can help to maintain the momentum of the largely aspirational Agreement, building on a willingness of countries to raise their ambitions in their 5 yearly NDCs<sup>2</sup>.

The Compact of States and Regions combines three essential features that help to move the world closer to achieving the Paris outcomes – transparency; strong engagement from non-Party stakeholders; and ambitious commitments.

### TRANSPARENCY

Less than two years after the launch of the Compact, 62 governments are now voluntarily reporting on their climate strategies. By agreeing to do this on an annual basis, these states, provinces and regions are allowing a regular and transparent assessment of the progress on their commitments. Together they have disclosed 105 GHG reduction targets, 61 targets to increase the share of renewables and 47 energy efficiency targets. Many of these targets will be showcased and analyzed in chapter 2. The progress that has so far been made towards achieving the targets will be the core theme of chapter 3.

<sup>1</sup> United Nations Framework Convention on Climate Change, Paris Agreement, December 2015.

<sup>2</sup> The ratification of the Paris Agreement turned the INDCs into NDCs, that Parties commit to implement.

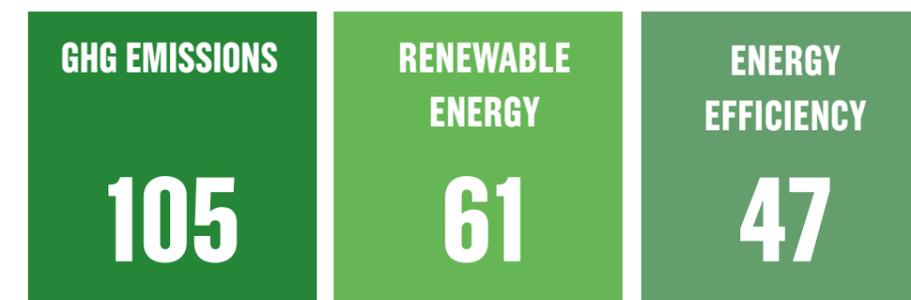
**“TRANSPARENCY LIES AT THE HEART OF A SUCCESSFUL CLIMATE ACTION POLICY. THIS IS THE ONLY WAY TO PROVE WE ARE ON THE RIGHT TRACK TOWARDS OUR CLIMATE GOALS. THEREFORE, I AM DEEPLY IMPRESSED BY THE WIDE RESPONSE OF SO MANY JURISDICTIONS TO THE COMPACT OF STATES AND REGIONS. I AM DELIGHTED TO SEE THAT SO MANY GOVERNMENTS OF THE UNDER2 COALITION ALSO CONTRIBUTED TO THE COMPACT.”**

**- Franz Untersteller, Minister of the Environment, Climate Protection and the Energy Sector, Baden-Württemberg**

These pioneering governments are ensuring that annual disclosure of climate data becomes the new standard amongst states and regions globally. Transparency and accountability are imperative if the ambition of the Paris Agreement is to be fully realized, and they are essential in building trust and sending clear signals to investors, insurers, corporates and consumers. Moreover, current climate policies are not sufficient to limit global warming to well below 2 degrees Celsius, and that is why the Paris Agreement includes an 'ambition mechanism' aimed at gradually increasing the ambition of the NDCs. The centerpiece of this mechanism is a global stocktake every five years, which allows reflection and a reassessment of targets. Transparency and accountability will be crucial in ensuring that this new mechanism is effective in accelerating climate action.

Likewise, the Compact Disclosure Report provides a 'stocktake' of ambition at the state and regional level. As an annual reference report, the lessons from this and subsequent editions could serve to inform international discussions on raising ambition and stimulate transparency across all levels of government.

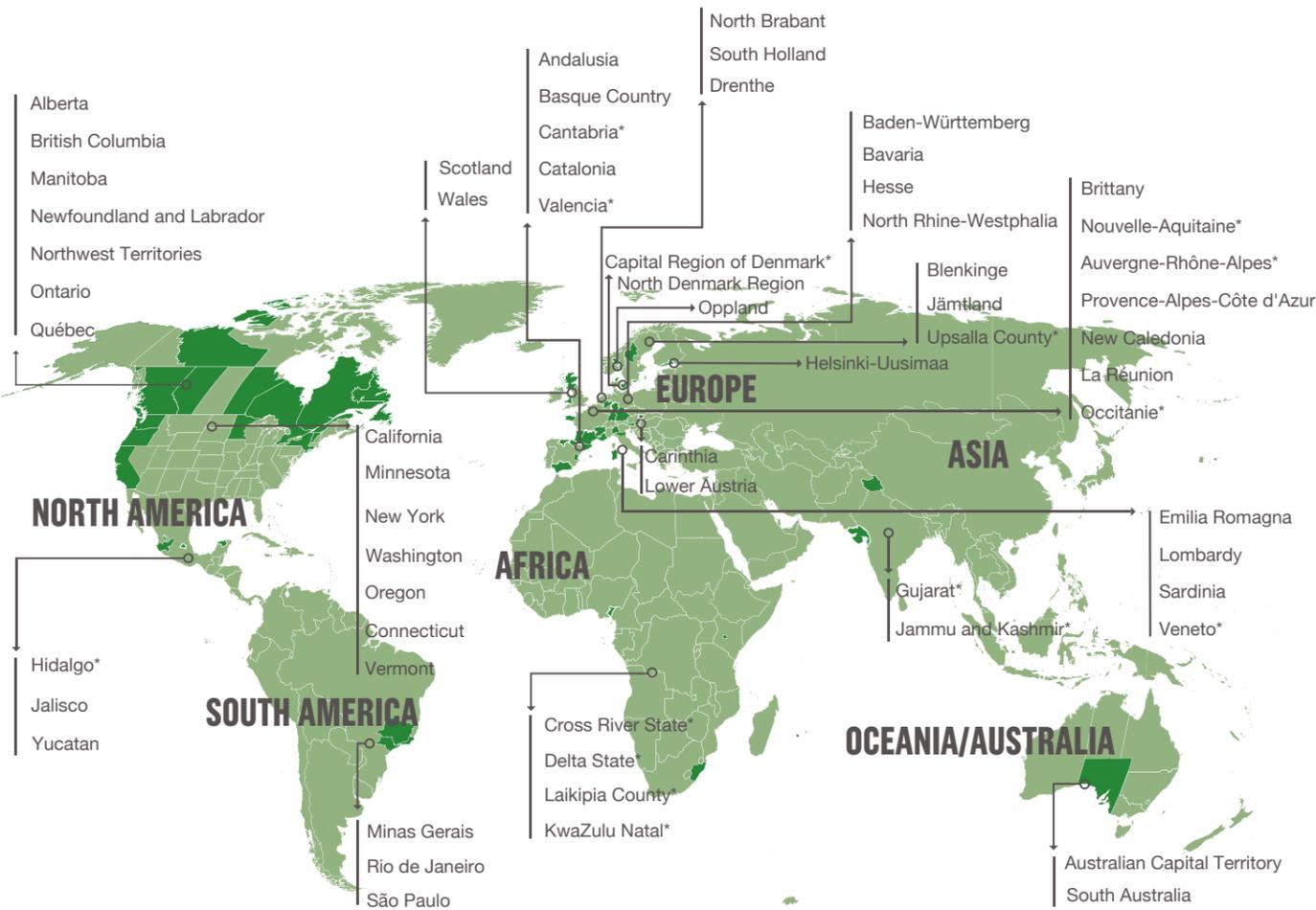
#### Number of disclosed climate targets in 2016



#### STRONG ENGAGEMENT FROM STATES, PROVINCES AND REGIONS

Governors, Premiers and First Ministers from states, provinces and regions around the world played a key role at COP21 last year. While the jurisdictions they represent have a great diversity in geography, culture, and socioeconomics, they showed unity when it came to advocating an ambitious climate agreement. Through the Compact of States and Regions, they are also taking their collective responsibility to monitor progress against their climate targets. Most importantly, states, provinces and regions are not back-peddalling after the COP21 media spotlight has faded – as shown by the overwhelming numbers of states, provinces and regions who disclosed their climate data this year. With a 41% increase since the first reporting period in 2015, disclosing governments now span 6 continents, 22 countries and represent over 443 million citizens and 17% of the global economy. Many more regions are lining up to start disclosing in 2017 and beyond, and the continued momentum from this level of government will help to ensure that the agreement reached in Paris is passed from national governments to all levels of government, and ultimately to all citizens.

Figure 1: Governments disclosing to the Compact of States and Regions



\*Observers to the Compact of States and Regions.

**“WHEN JURISDICTIONS BOTH LARGE AND SMALL SHOW CLIMATE LEADERSHIP, TOGETHER WE CAN HAVE A GLOBAL IMPACT. THAT IS WHAT THE COMPACT OF STATES AND REGIONS EXEMPLIFIES: THE POWER OF COLLECTIVE ACTION. AS A SUB-NATIONAL GOVERNMENT, BRITISH COLUMBIA CONTINUES TO PLAY OUR PART IN THE FIGHT AGAINST CLIMATE CHANGE – INCLUDING A WORLD-RENOWNED REVENUE-NEUTRAL CARBON TAX AND AN UPDATED CLIMATE PLAN WITH ADDITIONAL MEASURES TO REDUCE HARMFUL EMISSIONS WHILE GROWING THE ECONOMY AND CREATING JOBS.”**

- Mary Polak, Minister of Environment, British Columbia



Facts and figures from the 2016 disclosure

<p><b>POPULATION</b></p> <p><b>443</b></p> <p><b>MILLION</b></p>	<p><b>GDP</b></p> <p><b>US\$12.9</b></p> <p><b>TRILLION</b></p>	<p><b>GHG EMISSIONS</b></p> <p><b>3.1 Gt</b></p> <p><b>CO<sub>2</sub>e</b></p>
<p><b>MORE THAN THE COMBINED POPULATION OF THE US AND GERMANY</b></p>	<p><b>ABOUT 17% OF GLOBAL ECONOMY</b></p>	<p><b>MORE THAN THE COMBINED EMISSIONS OF INDIA AND CANADA</b></p>

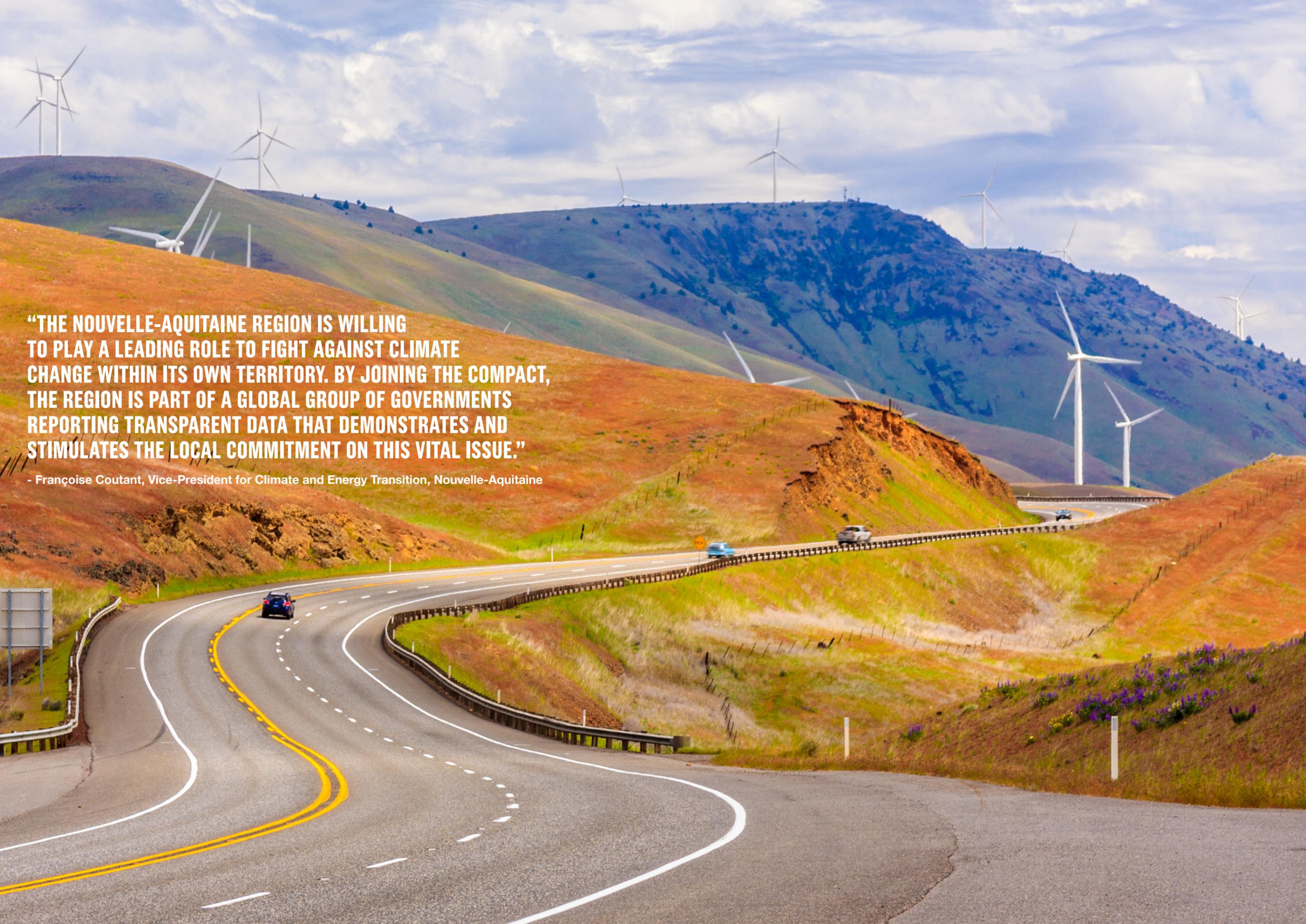
**AMBITIOUS COMMITMENTS**

The 2015 edition of this report showed, for the first time, the substantial emissions savings that states, provinces and regions are aiming to achieve. This year's report confirms that these governments acknowledge the opportunity and necessity to cut their region-wide GHG emissions, and cut these emissions fast. Using directly disclosed data, we estimate that the states and regions who have disclosed both a region-wide GHG emissions reduction target and a GHG inventory, are on course to reduce their collective emissions from 2.8 GtCO<sub>2</sub>e to 1.2 GtCO<sub>2</sub>e by 2050, reflecting a reduction in absolute emissions of 59%. This translates to a decrease in per capita GHG emissions intensity from 9.8 tCO<sub>2</sub>e/capita to 3.4 tCO<sub>2</sub>e/capita, or 65%.

Table 1 shows the corresponding annual and cumulative savings against two reference scenarios (see methodology box). When compared with the 4 Degrees Scenario (4DS), which was modelled using pre-2012 intentions by national governments to cut GHG emissions and boost energy efficiency, the cumulative savings resulting from the targets are equal to 2.1 GtCO<sub>2</sub>e by 2020, 7.6 GtCO<sub>2</sub>e in 2030 and 25.1 GtCO<sub>2</sub>e in 2050. The GHG emissions savings compared with the 6 Degrees Scenario (6DS) results are considerably higher but this scenario is an extension of trends as identified in 2013 and does not account for the pre-2012 pledges that are included in the 4DS. In light of the more recent national pledges in NDCs, a comparison against the 4DS seems more relevant.

Table 1: Annual and cumulative GHG savings potential

	COMPARED WITH IEA 4DS (SAVINGS IN GtCO <sub>2</sub> e)		COMPARED WITH IEA 6DS (SAVINGS IN GtCO <sub>2</sub> e)	
	Annual GHG savings	Cumulative GHG savings	Annual GHG savings	Cumulative GHG savings
2020	0.4	2.1	0.6	3.1
2030	0.6	7.6	1.1	12.4
2050	1.2	25.1	2.1	44.9



**“THE NOUVELLE-AQUITAINE REGION IS WILLING TO PLAY A LEADING ROLE TO FIGHT AGAINST CLIMATE CHANGE WITHIN ITS OWN TERRITORY. BY JOINING THE COMPACT, THE REGION IS PART OF A GLOBAL GROUP OF GOVERNMENTS REPORTING TRANSPARENT DATA THAT DEMONSTRATES AND STIMULATES THE LOCAL COMMITMENT ON THIS VITAL ISSUE.”**

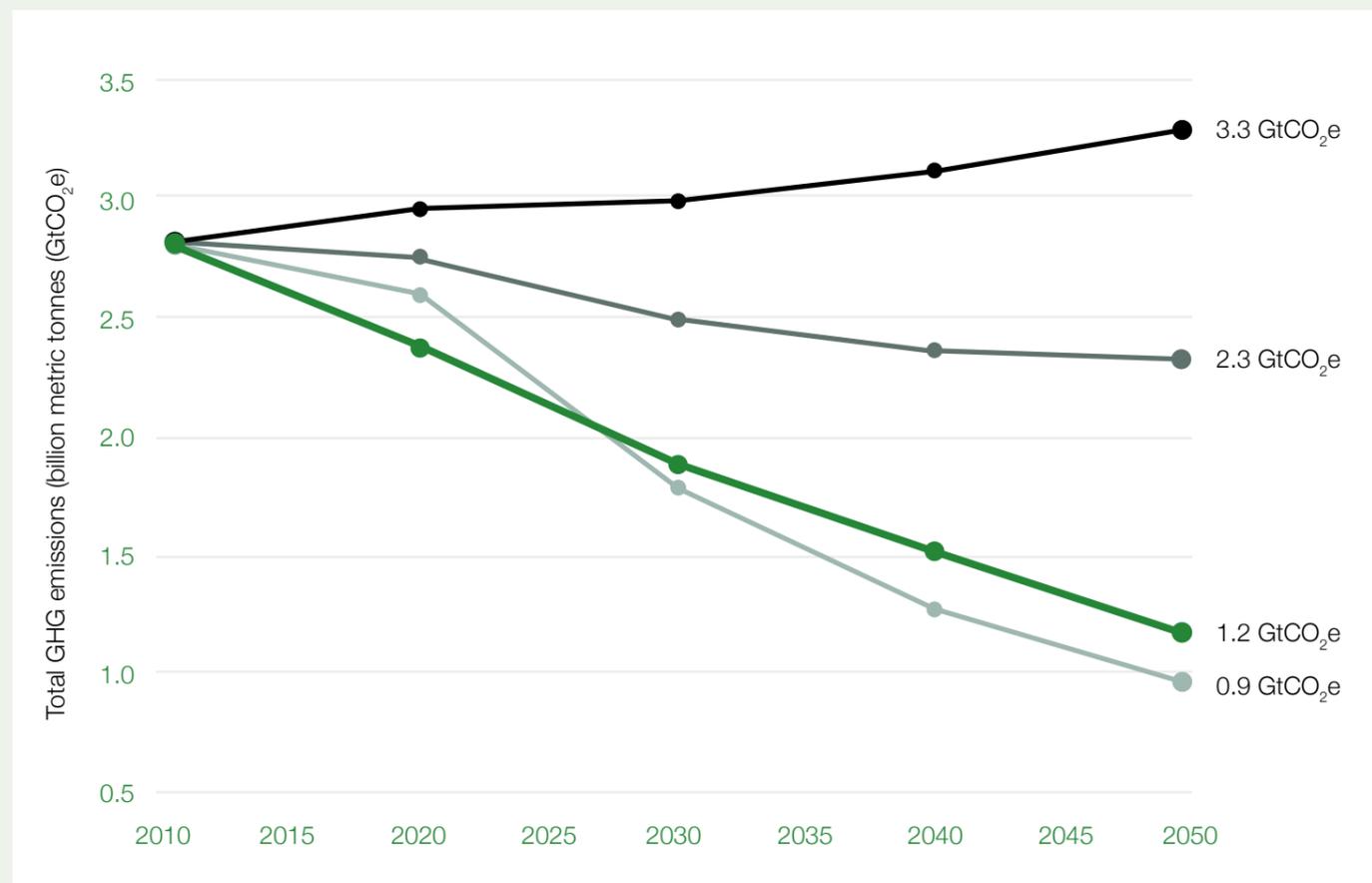
- Françoise Coutant, Vice-President for Climate and Energy Transition, Nouvelle-Aquitaine

**Importantly, our analysis illustrates how the commitments from these states, provinces and regions are putting a 2 degrees Celsius world within reach.**

Delivering on all disclosed 2020 targets in time would result in savings that puts these governments on track to stay under the 2 Degrees Scenario (2DS) as visualized in Figure 2.

While the near-term ambition is exemplary, there is definitely room for progress, as only around half of the governments included in the analysis have a 2050 target. The lack of long-term targets translates into emissions reduction levels that are not sufficient to stay below the 2 Degrees Scenario post 2030. Consequently, governments are urged to increase their long-term ambition to match the required rate of decarbonization and deliver on climate targets that achieve a well-below 2 degrees Celsius world by 2050. In this regard, the US states are taking the lead. All 7 disclosing states have 2050 base year emissions targets, varying from 50% by 2050 on 1990 levels in the case of Washington state, to 80% by 2050 on 1990, 2001 or 2005 levels in the case of California, Connecticut, Minnesota, and New York State respectively.

**Figure 2: Projected Compact GHG emissions with IEA scenarios: 2010 to 2050**



- 6 Degree Scenario (6DS)
- 4 Degree Scenario (4DS)
- 2 Degree Scenario (2DS)
- Compact target scenario (CTS)

Based on this analysis, governments are called upon to prioritize the completion of their 2020 GHG emissions reduction targets, and begin the process of developing mid and long-term targets immediately, if they haven't already. Targets to 2020 are adequate but greater ambition is required to keep the global average temperature increase well below 2 degrees Celsius and avoid severe climate change impacts. If global GHG emissions were to continue unabated, similarly to the 6DS, the remaining carbon budget put forth in the Intergovernmental Panel on Climate Change's Fifth Assessment Report of 485 trillion tCO<sub>2</sub><sup>3</sup> would be depleted by 2045.

<sup>3</sup> Compatible with a 2 degrees Celsius goal. Note that this budget relates to CO<sub>2</sub> emissions and does not include all GHGs.

## METHODOLOGY OF EMISSIONS SAVED CALCULATIONS

The annual and cumulative savings reflected in Table 1 are estimated by adopting a common base year, in this case 2010, and by projecting the level of GHG emissions savings that could be achieved by the disclosing governments (Compact Target Scenario or CTS) against two reference scenarios. These scenarios are calculated using data and analysis from the International Energy Agency's (IEA) Energy Technologies Perspectives 2014 (ETP 2014) report that refers to the 4 Degrees Scenario (4DS) and 6 Degrees Scenario (6DS).

The ETP 2014<sup>4</sup> analyzes three possible energy futures to 2050:

- 6 Degrees Scenario (6DS) that reflects a 2012 'business as usual' projection with potentially devastating results;
- 4 Degrees Scenario (4DS) that reflects pre-2012 intentions by countries to cut GHG emissions and boost energy efficiency;
- 2 Degrees Scenario (2DS) that offers a vision of a sustainable energy system of reduced GHG emissions.

These were integrated into the Compact's analysis by developing a series of 5 year vectors for each scenario, from 2010 to 2050, based on UN population forecasts, real GDP growth and modelled IEA CO<sub>2</sub> emissions projections to 2050 that account for a portfolio of sector specific policies and technologies across the energy, transport, industry and buildings sectors.

In the case where a government had a target to 2020 or 2030 but not to 2050, the emissions from their target year to 2050 were calculated using the target year GHG/capita intensity, multiplied by population change and the 4DS vectors. Finally, the analysis then compares whether the level of ambition of disclosing governments to cut GHG emissions puts them on track to deliver the required rate of decarbonization for a well below 2 degrees Celsius world, referencing the IEA's 2DS scenario (see Figure 2).

This method of estimating savings differs slightly from the approach used in the 2015 Compact report. The methodology change aims to better reflect the current state of global emissions and climate policies by taking into account pre-2012 national pledges to cut emissions and boost energy efficiency.

*Governments included in the analysis are those who have disclosed both a region-wide GHG emissions reduction target and a region-wide GHG inventory: Australian Capital Territory, Andalusia, Baden-Württemberg, Basque Country, Bavaria, Blekinge, British Columbia, Brittany, California, Carinthia, Catalonia, Connecticut, Drenthe, Emilia-Romagna, Helsinki-Uusimaa, Hesse, Jalisco, Jämtland, La Réunion, Lombardy, Lower Austria, Manitoba, Minas Gerais, Minnesota, New York, Newfoundland and Labrador, North Brabant, North Denmark Region, North Rhine-Westphalia, Northwest Territories, Ontario, Oppland, Oregon, Provence-Alpes-Côte-d'Azur, Québec, Rio de Janeiro, São Paulo, Scotland, South Australia, South Holland, Vermont, Wales, Washington.*

<sup>4</sup> International Energy Agency, Energy Technology Perspectives 2014 - Harnessing Electricity's Potential, June 2014.

## DETERMINING THE LEVEL OF AMBITION: STATE AND REGIONAL CLIMATE TARGETS

Developing a robust climate strategy is a complex exercise. Governments need to determine which sectors are contributing most to their regional emissions and have the largest potential to reduce emissions substantially. This requires trade-offs and buy-in from industry and civil society. Mitigation efforts should be complemented by adaptation plans – an important balancing act that is explicitly recognized in the Paris Agreement. Finally, climate measures should be embedded in wider legislative and regulatory frameworks. The pinnacle of most climate strategies, however, take the form of region-wide GHG reduction targets. These are often the most visible reflection of a government's ambition and provides investors with the necessary certainty to make the investments needed to minimize the long-term costs of climate change and maximize the opportunities of a low carbon economy.

### CUTTING REGIONAL GREENHOUSE GAS EMISSIONS

To date, a substantial gap remains between emissions reductions stated in national governments' climate plans submitted to the UNFCCC and the reduction levels consistent with limiting warming to well below 2 degrees Celsius<sup>5</sup>. Consequently, it is essential that governments continue to review and improve their climate strategies and targets to achieve deeper GHG emissions reductions.

Compared to the data disclosed in 2015, a number of states, provinces and regions have indeed publically submitted their climate plans and heightened their ambition (see Table 2). South Australia, for example, has replaced its 2050 target of reducing GHG emissions by 60% with a commitment to achieve net zero emissions by 2050. Similarly, Australian Capital Territory has decided to bring forward its long term decarbonization target by a decade and set a goal to reduce GHG emissions to achieve zero net emissions by 2050. From those governments that have started to disclose in the 2016 reporting cycle, Oppland and Helsinki-Uusimaa are also aiming to become carbon neutral regions.

In its disclosure, Helsinki-Uusimaa included a high-level summary of its 6-step plan to pursue that objective:

1. Draft a plan on making the Helsinki-Uusimaa Region carbon neutral by 2050<sup>6</sup>.
2. Make local and renewable energy options attractive and easy for the residents of the Helsinki-Uusimaa Region to use.
3. Investigate the technical, economic and environmental preconditions of renewable energy production in the Helsinki-Uusimaa Region.
4. Develop a community structure by better intertwining the location of housing, services and jobs.
5. Observe carbon sinks in land use planning and make use of emissions calculations and total energy reviews.
6. Develop an environmental risk evaluation, prevention methods and accident management.

<sup>5</sup> Climate Analytics, Ecofys and NewClimate Institute, Climate Action tracker, <http://climateactiontracker.org/global/173/CAT-Emissions-Gaps.html>. December 7, 2015.

<sup>6</sup> This plan has been finalized.

## 2

**“OPPLAND COUNTY SHALL BE CLIMATE NEUTRAL BY 2025. WITH THIS AMBITION, IT IS VITAL THAT WE HAVE THE TOOLS TO MEASURE AND DOCUMENT THE PROGRESS. OUR ENGAGEMENT WITH THE COMPACT OF STATES AND REGIONS WILL PROVIDE US WITH THE RELEVANT KNOWLEDGE, USEFUL TOOLS AND NEW CONNECTIONS AND NETWORKS WHICH WILL BE IMPORTANT IN ORDER TO ACHIEVE OUR AMBITIOUS GOALS OF A GREEN FUTURE.”**

- Even Aleksander Hagen,  
County Mayor of Oppland

The above carbon neutral and net zero GHG emissions targets are particularly relevant following the Paris Agreement's goal to “achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century”. Neutrality and net zero are indeed aimed at balancing released CO<sub>2</sub> or all GHG emissions released with an equivalent amount of CO<sub>2</sub> or GHG emissions' uptake. It is important that governments who opt for this kind of fixed-level goal are clearly communicating on the GHGs that are included in their goal, how sinks will be accounted for and whether or not carbon offsetting will be a substantial contributor.

### Timeframe of disclosed region-wide GHG reduction targets



Based on 47 governments disclosing a region-wide GHG emissions target

Of the 62 Compact governments, 47 disclosed one or more targets to reduce their region-wide GHG emissions, as shown in Table 2. This includes three observer governments and is a 27% increase on last year when 37 states, provinces and regions disclosed such a target.

### GHG EMISSIONS REDUCTION TARGET SETTING

In order for states, provinces and regions to accurately track and reduce their region-wide GHG emissions, they need to develop a region-wide GHG emissions inventory and design an accompanying GHG emissions reduction target or goals.

When designing a GHG emissions reduction target, states and regions have a variety of options to consider such as: what type of target they want to set, what level of reduction in emissions they aim for, what GHG sources and sectors of their inventory they want to include, what geographic boundary they want to use, whether they are targeting a single year (e.g. 2020) or multiple years (2020, 2030, and 2050), and whether they want to allow transferable emissions units (such as credits) to count towards the target.

Four of the most common types of targets, as defined by the Mitigation Goal Standard developed by the GHG Protocol<sup>7</sup>, are:

- **Base year emissions goals<sup>8</sup>**: reduce emissions by a specified quantity relative to a base year
- **Fixed-level goals**: reduce emissions to an absolute emissions level in a target year (for example, a carbon neutrality goal)

<sup>7</sup> Mitigation Goal Standard, An accounting and reporting standard for national and subnational greenhouse gas reduction goals, November 2014.

<sup>8</sup> Also referred to as an absolute emissions target.

- **Base year intensity goals:** reduce emissions intensity (emissions per unit of another variable, such as GDP or population) by a specified quantity relative to a base year
- **Baseline scenario goals<sup>9</sup>:** reduce emissions by a specified quantity relative to a projected emissions baseline scenario

Having examined all the options for what best meets their needs, states and regions should note that base year and fixed level targets are simpler to account for, more certain, and more transparent than base year intensity and baseline scenario goals. This is because allowable emissions in the target year(s) can be easily calculated at the beginning of the target period, and progress can be tracked using the GHG inventory alone without the need for additional models, socioeconomic data or assumptions.

For more information on setting GHG emissions reduction targets, please consult the Mitigation Goal Standard developed by the GHG Protocol.

#### TABLE KEY

Updated disclosure      New disclosure in 2016

**Table 2: Region-wide GHG reduction targets**

GOVERNMENT	BASE YEAR	2020	2030	2050
<b>Base year emissions goal</b>				
Australian Capital Territory	1990	40%		10%
Baden-Württemberg	1990	25%		90%
Basque Country	2005		40%	80%
Blekinge	1990	50%		
British Columbia	2007	33% <sup>11</sup>		80%
Brittany	2005	17%		52%
California	1990	12%	40%	80%
Carinthia	2005	16% <sup>13</sup>		
Catalonia	2005	25%	40%	
Connecticut	1990/2001 <sup>14</sup>	10%		80%
Drenthe	1990	20%		90% <sup>15</sup>
Emilia-Romagna	1990	20% <sup>16</sup>		
Hesse	1990	30%	40%	
Jalisco	2010		30%	50%
KwaZulu-Natal	2000	16% <sup>17</sup>		
Jämtland	1990	50%	100%	
La Réunion	2011	10%		
Lombardy	2005	20% <sup>18</sup>	40%	
Lower Austria	2005	16% <sup>19</sup>		
Manitoba	2005	15%		
Minnesota	2005		30%	80%

<sup>9</sup> Also referred to as business-as-usual targets.

<sup>10</sup> See fixed-level goals.

<sup>11</sup> This target no longer appears in British Columbia's Climate Leadership Plan, which was published in August 2016 after the 2016 reporting deadline.

<sup>12</sup> See fixed-level goals.

<sup>13</sup> Carinthia's target applies to region-wide EU non-ETS sector emissions.

<sup>14</sup> Connecticut's 2050 target is based on a 2001 base year.

<sup>15</sup> Drenthe's 2050 target is based on the national and EU targets.

<sup>16</sup> Emilia-Romagna's target is based on the national target.

<sup>17</sup> KwaZulu-Natal's target is included in their tentative GHG reduction plan.

<sup>18</sup> Lombardy's target applies to region-wide EU non-ETS emissions.

<sup>19</sup> Lower Austria's target applies to region-wide Non-ETS sector emissions.

New York State	1990		40%	80%
Newfoundland and Labrador	1990 <sup>20</sup>	10%		75%
North Denmark Region	2012	35%		
North Rhine-Westphalia	1990	25%		80%
Ontario	1990	15%	37%	80%
Oppland	1990	30%		21
Oregon	1990	10%		75%
Provence-Alpes-Côte d'Azur	2007	20%	35%	
Québec	1990	20%	37.5%	
São Paulo	2005	20%		
Sardinia	1990			83%
Scotland	1990	42%		80%
South Holland	1990			80% <sup>22</sup>
Veneto	2005			80%
Vermont	1990		50% <sup>23</sup>	75%
Wales	1990	40%		80%
Washington	1990	NA <sup>24</sup>	25% <sup>25</sup>	50%

#### Baseline scenario goal

Minas Gerais	Trend scenario		25%	
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#### Base year intensity goal

Andalusia	Reduce GHG emissions intensity to 4.25 tons per capita by 2020 <sup>26</sup> .
Bavaria	Reduce GHG emissions per capita to below 2 tons annually by 2050.
Laikipia County	Keep GHG emissions per capita below 2 tons through 2050.
Rio de Janeiro	Reduce GHG emissions per unit of GDP below 2005 levels by 2030.
Yucatán	Reduce intensity of region-wide GHG emissions by 20% by 2018 and 40% by 2030 on 2005 levels.

#### Fixed-level goal

Australian Capital Territory	Reduce GHG emissions to achieve zero net emissions by 2050.
California	Limit GHG emissions to 431.000 Mt CO <sub>2</sub> e in 2020.
Helsinki-Uusimaa	Become a carbon neutral region by 2050.
Northwest Territories	Limit GHG emissions to 1.656 Mt CO <sub>2</sub> e in 2030 <sup>27</sup> .
Oppland	Become a carbon neutral region by 2025.
South Australia	Reduce GHG emissions to achieve zero net emissions by 2050.

<sup>20</sup> Newfoundland and Labrador's 2050 target is based on a 2001 base year.

<sup>21</sup> See fixed-level goals.

<sup>22</sup> South Holland's target is to reduce region-wide GHG emissions by 80%-95% in line with the Under 2 Subnational Global Climate Leadership Memorandum of Understanding.

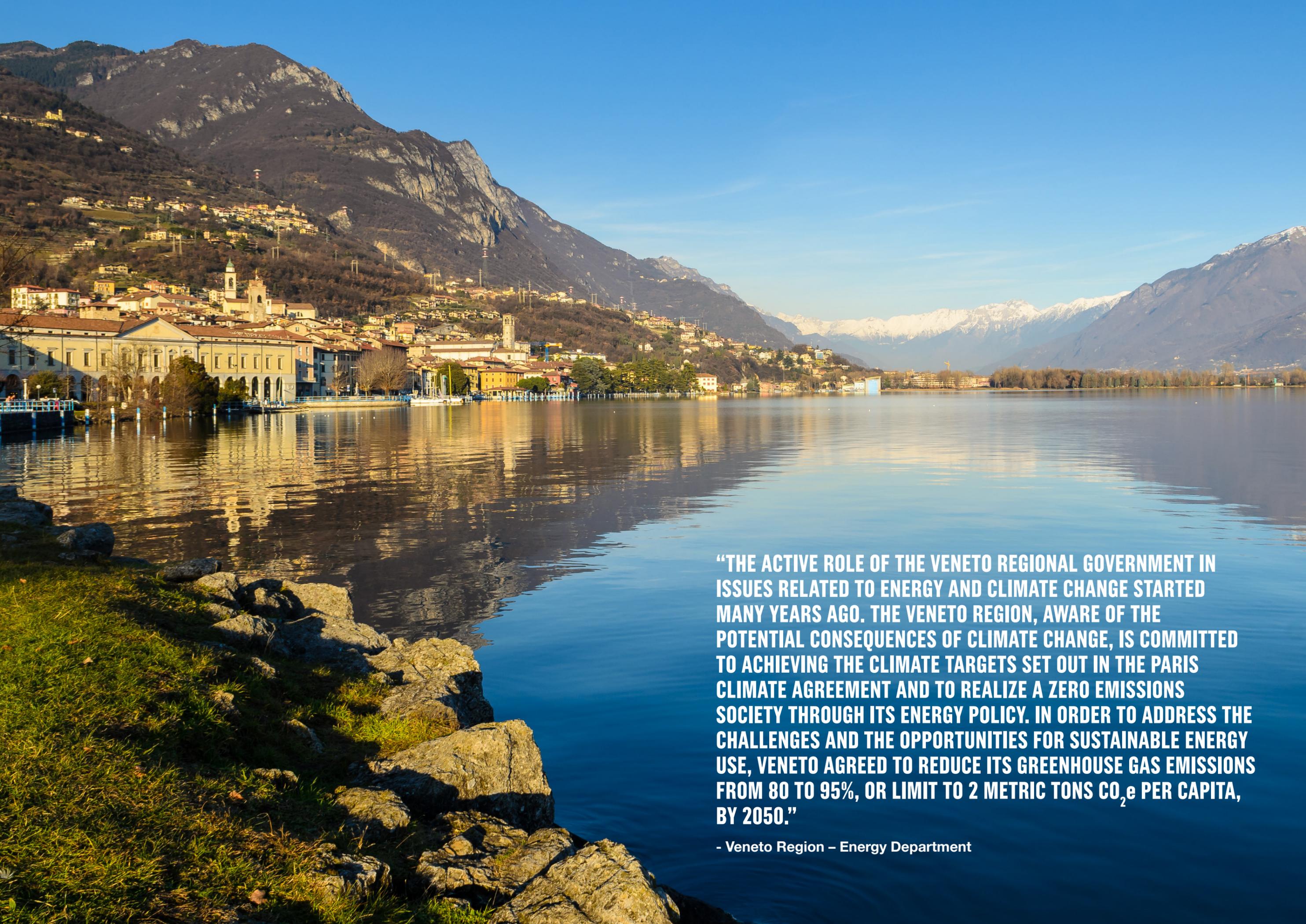
<sup>23</sup> Vermont's mid-term target year is 2028.

<sup>24</sup> Washington has a target to return GHG emissions to 1990 levels by 2020.

<sup>25</sup> Washington's mid-term target year is 2035.

<sup>26</sup> Andalusia's target applies to non-ETS emissions (EU Effort Sharing Decision).

<sup>27</sup> Equals a return of GHG emissions to 2005 levels.



**“THE ACTIVE ROLE OF THE VENETO REGIONAL GOVERNMENT IN ISSUES RELATED TO ENERGY AND CLIMATE CHANGE STARTED MANY YEARS AGO. THE VENETO REGION, AWARE OF THE POTENTIAL CONSEQUENCES OF CLIMATE CHANGE, IS COMMITTED TO ACHIEVING THE CLIMATE TARGETS SET OUT IN THE PARIS CLIMATE AGREEMENT AND TO REALIZE A ZERO EMISSIONS SOCIETY THROUGH ITS ENERGY POLICY. IN ORDER TO ADDRESS THE CHALLENGES AND THE OPPORTUNITIES FOR SUSTAINABLE ENERGY USE, VENETO AGREED TO REDUCE ITS GREENHOUSE GAS EMISSIONS FROM 80 TO 95%, OR LIMIT TO 2 METRIC TONS CO<sub>2</sub>e PER CAPITA, BY 2050.”**

**- Veneto Region – Energy Department**

Compared to the disclosure in 2015, a number of states, provinces and regions introduced a new interim target:

- Catalonia and New York State introduced an interim goal of 40% GHG emissions reduction by 2030;
- Québec introduced an interim goal of 37.5% GHG emissions reduction by 2030;
- Yucatán disclosed a new goal to reduce intensity of region-wide GHG emissions by 20% by 2018 and 40% by 2030 on 2005 levels;
- KwaZulu-Natal and Laikipia County, who had not yet disclosed a GHG emissions reduction target in 2015, included their first ever region-wide GHG reduction targets.

Additionally, the newly disclosing governments of Andalusia, Blekinge, Helsinki-Uusimaa, Hesse, Lower Austria, Minnesota, North Denmark Region, Oppland, Sardinia, South Holland and Veneto already reported a region-wide GHG emissions reduction target.

Finally, four governments no longer disclosed their 2015 region-wide target: Alberta, Aquitaine, Midi-Pyrénées, and Rhône-Alpes.

- Alberta introduced its new Climate Leadership plan and moved away from baseline scenario goals adopted in 2008 to introduce a number of targeted and sector-specific goals (see Table 3). Alberta also introduced an economy-wide carbon tax of \$20 per ton, to be increased to \$30 per ton by January 2018.
- In January 2016, France reduced the number of its metropolitan regions from 22 to 13, causing multiple regions to merge including Aquitaine, Midi-Pyrénées, and Rhône-Alpes. The newly formed regions Nouvelle-Aquitaine, Occitanie and Auvergne-Rhône-Alpes are currently observing the Compact of States and Regions and will be disclosing their region-wide reduction targets once their new climate strategies are finalized and approved.

Other governments that are yet to report a region-wide target to reduce their GHG emissions include: Cantabria, Capital Region of Denmark, Cross River State, Delta State, Gujarat, Hidalgo, Jammu and Kashmir, New Caledonia, North-Brabant, Uppsala County and Valencia.

**Range of disclosed GHG reduction targets (base year emissions goals)**

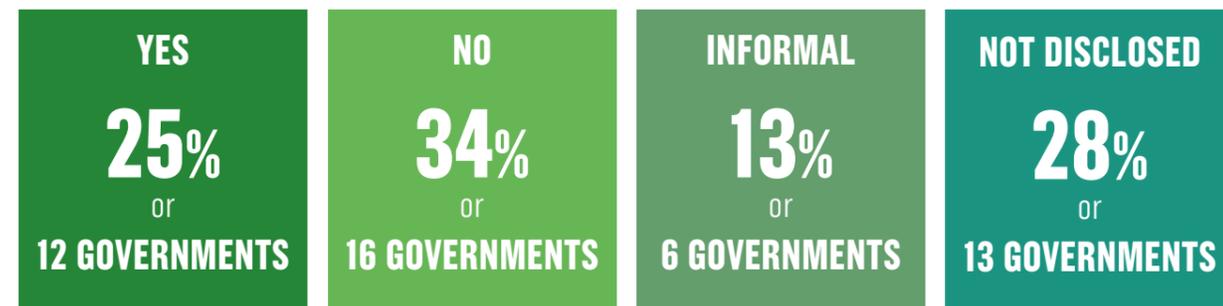


**MODELLING DECARBONIZATION PATHWAYS**

While the 2016 disclosed data confirms that regional leaders have been adopting ambitious short, medium and long-term targets and continue to raise ambition year-on-year, the data does point towards a lack of low carbon pathways to accompany those targets, with 34% of governments indicating that they had not yet modelled a decarbonization pathway for their target. It is crucial that governments have concrete plans in place to meet their target as pathways' analysis provides crucial information about how GHG reduction targets can be met considering the trade-offs that will have to be made.

In order to achieve their GHG reduction goals, regions need to understand their different options, or potential pathways, for achieving deep-decarbonization over time. Identifying these pathways from the outset is critical in ensuring that decision-makers understand the costs, risks, and trade-offs associated with different policy choices, and that they avoid emissions "dead ends" (i.e. short-term solutions that make it impossible to achieve long-term goals). For example, in 2014, California developed potential pathways towards a range of 2030 targets, along the way to the state's goal of reducing GHG emissions to 80% below 1990 levels by 2050. With input from state agencies, they developed scenarios that outlined the pace at which emissions reductions could be achieved in California, as well as the mix of technologies and practices that could be deployed.

**Development of low carbon pathways towards the disclosed GHG emissions targets**



Based on 47 governments disclosing a region-wide GHG emissions reduction target

## UNDER2 COALITION: SUPPORTING STATES AND REGIONS IN DEVELOPING 2050 PATHWAYS TOWARDS DEEP-DECARBONIZATION

The Under2 MOU is a commitment by sub-national governments to limit their GHG emissions by 80-95%, or 2 metric tons CO<sub>2</sub>-equivalent per capita, by 2050.

Every government faces different challenges in this journey, and the Under2 Coalition, of which The Climate Group functions as the Secretariat, provides a global forum that supports Under2 signatories as they move towards a trajectory consistent with 2050 carbon neutrality. The Under2 Coalition already brings together 166 governments who together represent a third of the global economy. Under2 signatories have identified deep-decarbonization pathways planning as a key priority area of work to help them to deliver against this commitment.

In the near-term, the goal is to demonstrate the feasibility and value of developing deep de-carbonization pathway plans for a select group of sub-national governments across different geographical and economic circumstances. Results will be presented in advance of the global stock-take in 2018, to promote the process as a model for other national and sub-national governments to follow.

## REDUCING SECTORAL GREENHOUSE GAS EMISSIONS

In addition to region-wide goals, governments are also setting sectoral targets to address specific sources of emissions within their jurisdictions. Setting sectoral targets can offer more flexibility by accounting for the impact of particular carbon-intensive sectors. Alberta, where electricity generation and fossil fuel extraction accounts for 64% of regional emissions<sup>28</sup>, recently introduced a number of sectoral targets of which three address energy emissions (Table 3). Furthermore, New Caledonia, a French overseas territory with large nickel reserves, has a specific mining target, Laikipia county is aiming to increase its tree planting by 25%, and Carinthia is aspiring to have a carbon neutral and nuclear-free mobility and electricity system. A number of governments, including the newly disclosing North Denmark Region and Uppsala County, are adopting goals to make their internal operations less carbon intensive.

28 Alberta Government, Alberta's current emissions, <http://www.alberta.ca/climate-current-emissions.aspx>, 2016.

### TABLE KEY

Updated disclosure

New disclosure in 2016

Table 3: Selected sectoral GHG targets

SECTOR	GOVERNMENT	TARGET
Buildings	New Caledonia	Reduce GHG emissions in the residential and tertiary sectors by 35% by 2030 (below a trend scenario).
Energy	Alberta	Reduce methane emissions from oil and gas sector by 45% by 2025 (below 2014 levels).
		Eliminate GHG emissions and air contaminants from coal-fired electricity generation by 2030.
		Limit oil sands emissions to a maximum of 100 Mt in any year to 2030. <sup>29</sup>
	Carinthia	Achieve a CO <sub>2</sub> neutral and nuclear power free electricity and heat production by 2025.
	Jämtland	Achieve a fossil-free region by 2030
Industry	Alberta	Facilities that emit 100,000 tons or more of GHG emissions are required to reduce their site-specific emission intensity by 15% annually (this increases to 20% as of January 1, 2017).
	New Caledonia	Reduce GHG emissions from the mining and metallurgy sectors by 10% by 2030 (below a trend scenario).
Land use	Laikipia County	Increase annual tree planting by 25%, resulting in over 10 million trees by 2030.
Public sector	Australian Capital Territory	Achieve carbon neutrality in government operations by 2020.
	North Denmark Region	Reduce the government's GHG emissions by 30% by 2025 (below 2009 levels).
	North Rhine-Westphalia	Achieve carbon neutrality in government operations by 2030.
	Rio de Janeiro	Reduce public sector energy-related GHG emissions by 30% by 2030 (below 2005 levels).
	Uppsala County	Reduce GHG emissions from energy and travel by 10% by 2018 (below 2014 levels).
	Vermont	Reduce GHG emissions from government operations by 75% by 2050 (below 1990 levels).
Transport	Carinthia	Achieve a CO <sub>2</sub> neutral and nuclear power free mobility system by 2035.
	New Caledonia	Reduce GHG emissions from transport by 15% by 2030 (below a trend scenario).
	Rio de Janeiro	Reduce GHG emissions in the transport sector by 30% by 2030 (below 2010 levels).
Waste	Rio de Janeiro	Reduce GHG emissions from sewage and solid-waste by 65% by 2030 (below 2005 levels).

29 This target includes some provisions for cogeneration and new upgrading capacity.

**INCREASING THE SHARE OF RENEWABLE ENERGY**

Global energy-related GHG emissions account for roughly two thirds of global emissions and have doubled since 1975<sup>30</sup>. Achieving the well below 2 degrees Celsius target largely depends on our ability to decarbonize the supply side on the one hand and incentivize lower demand on the other. As a result, many governments have adopted renewable energy and energy efficiency targets to supplement their GHG emissions reduction targets. Energy-related emissions cover fossil fuels burned for transportation, electricity and heat production, industrial energy use, fuel extraction, refining, and processing. The multiple sources of energy-related emissions are reflected in the many ways states, provinces and regions are disclosing these targets.

Overall, 39 governments disclosed a renewable energy target with 18 governments opting to set the target in relation to their region-wide energy mix (Table 4 and 5) and 17 governments setting electricity specific targets (Table 6 and 7). Other governments disclosed a sector-specific or technology-specific target (Table 8). These targets can apply to either the total final energy consumption or the primary energy supply. Some governments disclosed a combination of different target types.

**Table 4: Target shares of renewables in energy mix (total final energy consumption)**

GOVERNMENT	2020	2030	2050
Andalusia	25%		
Baden-Württemberg	25%		80%
Basque Country		20%	40%
Blekinge	80%		
Brittany	28%		
California	33%	50%	
Catalonia	20%		
Emilia-Romagna	17%		
Lombardy	15.5%		
Lower Austria <sup>31</sup>	50%		
North Brabant	14%		
Provence-Alpes-Côte-d’Azur	20%	30%	
South Holland	14%		
Veneto	10%		
Vermont			90%

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30 International Energy Agency, Historical data for 1975 to 2012 from the IEA publication “CO2 Emissions from Fuel Combustion, <http://www.iea.org/statistics/topics/CO2emissions/>, 2015.  
 31 Lower Austria also disclosed a target of 100% target share of renewable electricity consumption by 2015. This target was achieved on time.



**Table 5: Target shares of renewables in energy mix (total primary energy supply)**

GOVERNMENT	2020	2030	2050
North Denmark Region	20%		
São Paulo	69%		
Yucatán	9% <sup>32</sup>		

**Table 6: Target shares of renewables in electricity mix (consumption)**

GOVERNMENT	2020	2030	2050
Australian Capital Territory	100%		
Hesse			100% <sup>33</sup>
New Caledonia		20% <sup>34</sup>	
New York State		50%	
Scotland	50% <sup>35</sup>		

**Table 7: Target shares of renewables in electricity mix (production)**

GOVERNMENT	2020	2025	2030	2040
Alberta			30%	
Carinthia		100%		
Connecticut	27% <sup>36</sup>			
Jalisco		35% <sup>37</sup>		
La Réunion	50%		100%	
Minnesota		25%		
Ontario		49%		
Oregon				50% <sup>38</sup>
Sardinia	18%			
South Australia		50%		
Wales	15%			
Washington	15% <sup>39</sup>			

32 Yucatán’s target year is 2018.  
 33 Hesse’s target also includes heat.  
 34 New Caledonia also has the objective to reach 100% of renewables in the final energy mix of the Loyalty Islands by 2030.  
 35 Scotland’s target was to reach 50% of electricity consumption sourced from renewables by 2015 – in its disclosure, Scotland reported this target had been achieved.  
 36 Connecticut’s target is a Renewable Portfolio Standard, which requires electricity providers to source a fixed share of their retail electricity sales from eligible renewable sources. This share depends on the utilities’ size and each state’s policy.  
 37 Jalisco’s target year is 2024.  
 38 Oregon’s target is a Renewable Portfolio Standard (see above).  
 39 Washington’s target is a Renewable Portfolio Standard (see above).

The wide diversity of renewable energy targets using different definitions, characteristics and scope means that it is often difficult to categorize and analyze the targets. The wide variance in target share of renewables in both the total energy and electricity mix illustrates that ambition is closely linked to the historical energy mixes of these states, provinces and regions. For example, the hydro-rich province of Newfoundland and Labrador does not have a formal renewable energy target because it is expected that 98% of its electricity consumption will be renewable by 2019 due to new hydropower. Similarly, British Columbia's hydropower capacity means 93% of its electricity is already coming from renewable energy sources.

It is important to differentiate between the levels of ambition associated with renewables targets in the energy mix and in the electricity mix. Goals to increase the share of renewable energy in the region-wide energy mix are typically harder to achieve than targets applying to the electricity sector because the energy mix includes sectors for which the low carbon alternative is costlier or less widely available (e.g. freight transport). Lower Austria, for example achieved its ambitious 100% renewable electricity target in 2015, but still has a target of 50% renewable energy in the total energy mix by 2020. Similarly, Oppland, which already produces all of its electricity from renewable sources, made a pledge of 10% renewable energy use in its transport sector.

In addition to the above technology-neutral targets, several governments have disclosed renewable energy targets that seek to incentivize the uptake of a specific renewable source. For some governments this is aimed at making full use of their natural resources (e.g. Manitoba's pledge to increase hydropower), while others are taking the opportunity to address a wider societal issue. In this regard, Laikipia County is looking to increase the energy access of its households by pushing to increase the share of solar power.

**Table 8: Selected technology specific renewable energy targets**

TECHNOLOGY	GOVERNMENT	TARGET
Bioenergy	Québec	Increase bioenergy production by 50% by 2030 (based on 2013 levels)
	South Holland	Increase production of biofuels to 2.216 GWh by 2020
Geothermal	South Holland	Increase production of geothermal energy to 2,500 GWh by 2020
Hydro	Manitoba	Install more than 2,300 MW of hydro-electricity by 2027
Solar PV	Connecticut	Increase deployment of residential solar photovoltaic systems from 30 MW in 2015 to 300 MW by 2022
	La Réunion	Have 50% of residential housing equipped with solar water heating by 2020, and 80% by 2030

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Solar PV	Laikipia County	Have 25% of households with electricity powered by solar by 2025
	Minnesota	Renewable Energy Portfolio Standard: 1.5% of the retail electricity sales of all utilities must be sourced from solar by 2020
	Northwest Territories	Increase use of solar electricity within diesel powered communities to 20% by 2017
	South Holland	Increase production of solar to 416,667 GWh by 2020
Wind	Manitoba	Increase wind power capacity to 1,000 MW (as economically viable)
	South Holland	Increase production of onshore wind energy to 735.5 MW by 2020

**REDUCING ENERGY DEMAND**

Another way to deal with energy-related GHG emissions is for governments to work together with industries, businesses and households to reduce energy demand. Strong energy efficiency targets do not only contribute to achieving corresponding GHG emissions reductions and renewable energy targets, they also have a positive impact on state and regional economies. The IEA calculated that IEA countries saved a total of US\$540 billion in 2015 as a result of energy efficiency improvements since 2000, equalling US\$490 per capita<sup>40</sup>. Increasingly, industries, businesses and households are welcoming energy efficiency improvements as they realize the direct economic benefits attached.

Many states, provinces and regions have indeed disclosed their intentions to improve their energy efficiency or decrease their energy consumption, as a cost-effective way to reduce GHG emissions. In 2016, 31 governments reported an energy efficiency target of which 18 governments reported a region-wide, multi-sectoral energy efficiency target (Table 9 and 10). These targets take the form of either base year emissions goals or baseline scenario goals (indicated below by 'Trend scenario').

**Table 9: Energy efficiency targets (as an increase in energy efficiency)**

GOVERNMENT	PERCENT INCREASE IN ENERGY EFFICIENCY	BASE YEAR	TARGET YEAR
Emilia-Romagna	20%	Trend scenario	2020
Jämtland	30%	1990	2020
Newfoundland and Labrador	20%	2007	2020
Québec	15%	2013	2030
Uppsala County	10%	2014	2018

**Table 10: Energy efficiency targets (as a decrease in energy use)**

GOVERNMENT	PERCENT DECREASE IN ENERGY USE	BASE YEAR	TARGET YEAR
Andalusia	25%	Trend scenario	2020
Baden-Württemberg	50%	2010	2050
Blekinge	20%	1990	2020
Brittany	26%	2005	2020
Cantabria	17%	2010	2020
Catalonia	20%	Trend scenario	2020
Drenthe	10%	2010	2020
Lombardy <sup>41</sup>	10%	2005	2020
New Caledonia <sup>42</sup>	20%	Trend scenario	2030
New York State	23%	2012	2030
Provence-Alpes-Côte-d'Azur	13%	2007	2020
	25%	2007	2030
Scotland <sup>43</sup>	12%	2006	2020
Wales	18%	2007	2020

TABLE KEY	
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Many states, provinces and regions are complementing their region-wide energy efficiency targets with sectoral goals after realizing the enormous untapped potential in certain sectors, such as the energy and buildings sectors. Additionally, governments are leading the way by tackling the energy use in state-owned buildings, with Catalonia and Yucatán adding a new target compared to their 2015 disclosure.

**Table 11: Selected sectoral energy efficiency targets**

SECTOR	GOVERNMENT	TARGET
Buildings	California	Double energy efficiency progress achieved in existing buildings by 2030 (compared to progress measured in 2015)
	Newfoundland and Labrador	Reduce building and industry energy consumption by 20% by 2020 (below a trend scenario)
	New York State	Reduce energy consumption in buildings by 23% by 2030 (compared to 2012)
	South Australia	Improve the energy efficiency of residential dwellings by 15% by 2020 (compared to 2003)
	South Holland	Reduce gas consumption for heat production in buildings by 10% by 2020 (compared to 2013)
	Wales	Eradicate fuel poverty in all households by 2018
	Washington	Ensure all new buildings are energy-neutral prior to 2031

<sup>41</sup> Lombardy's target applies to energy use in EU non-ETS sectors.

<sup>42</sup> New Caledonia also has a target of reducing final energy use by 25% below a trend scenario in all sectors excluding mining and metallurgy.

<sup>43</sup> Scotland's near-term target is based on 2005-2007 levels.



Electricity/ Fuel	British Columbia	Reduce expected increase in electricity demand by at least 66% by 2020
	La Réunion	Increase energy efficiency of electricity use by 10% by 2020 and by 20% by 2030 (compared to a trend scenario)
	Manitoba	Save 1,136 MW of electricity and 108 million cubic metres of natural gas by 2029
	Minnesota	Require electricity and natural gas utilities to achieve 1.5% energy savings annually
	Ontario	Have electricity conservation account for 16% of forecast gross demand by 2032
	Québec	Reduce consumption of petroleum products by 40% by 2030 (compared to 2013)
		Eliminate the use of thermal coal by 2030
Industry	South Holland	Reduce energy consumption in the industry sector by 6.5% by 2020 (compared to 2013) Reduce gas consumption by the horticulture sector by 25% by 2030 (compared to 2015)
Public sector	Catalonia	Reduce energy consumption in governmental buildings by 14.3% by 2017 (compared to 2014)
	Connecticut	Reduce energy use of all state buildings by 20% by 2018 (compared to 2012) - focusing initially on buildings with the highest aggregate energy costs
	Jalisco	Increase energy efficiency in public buildings and fleet by 12% by 2018 (compared to 2013)
	Minnesota	Reduce energy use in state-owned buildings by at least 20%
	Rio de Janeiro	Reduce public-sector energy GHG emissions by 30% by 2030 (compared to 2005)
South Australia	Improve energy efficiency of government buildings by 30% by 2020 (compared to 2000)	
Yucatán	Reduce electricity consumption in public administration buildings by 5% by 2018 (compared to 2015)	

## WALKING THE TALK ON TARGETS

Chapter 2 of this report sets out the overarching GHG emissions reduction targets that leading states, provinces and regions are working towards. We have learned that these targets have the potential to make significant cuts in GHG emissions and that, if all targets are met, a reduction in absolute emissions of 59% by 2050 is possible – projected to equate to short-term cumulative savings in line with a below 2 degrees Celsius target.

While this illustrates the ambition of this group of governments, it does not guarantee that such savings will effectively materialize. It is therefore essential that governments seek to continuously track progress against their targets and adjust their climate policies, incentives and actions accordingly. In order to maintain the momentum that was catalyzed by the adoption and ratification of the Paris Agreement, governments must show that their targets are more than just aspirational, and it is therefore essential that steady progress towards long-term and interim targets is demonstrated.

This chapter will look at how states, provinces and regions are performing against these headline targets to reduce GHG emissions by comparing their latest GHG emissions figures against their base year inventories. By assessing the 1,299 individual climate actions that were disclosed in 2016, the chapter also gives a flavor of how states, provinces and regions are seeking to achieve their GHG emissions reduction goals.

### PROGRESS TOWARDS GREENHOUSE GAS REDUCTION TARGETS

States, provinces and regions have mostly been making steady progress towards achieving their overarching targets to reduce GHG emissions.

More specifically, 65% of governments disclosing a base year emissions reduction goal are currently below their base year emissions, varying in reduction rates between 1% and 46% (see Table 12). Charting this continued progress going forwards is paramount, but the development of consistent, accurate and complete region-wide GHG inventories is a complex task. The time lag between the occurrence of the emissions and the completion of inventories, in addition to the time lag between completion of the inventories and disclosure, causes a large variation in the GHG inventory years disclosed. Table 12 shows that inventory years range from 2010 to 2015. The significant time lag of some of the disclosed data means that some recent progress has not been accounted for.

3



TABLE KEY	
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This table has been updated in June 2017 to correct Andalusia's progress.

Table 12: GHG emissions trends from base year

GOVERNMENT	BASE YEAR	LATEST INVENTORY YEAR	LATEST GHG EMISSIONS INVENTORY (tCO <sub>2</sub> e)	PERCENT CHANGE FROM BASE YEAR
Alberta	NA	2014	273,754,000	NA <sup>44</sup>
Andalusia	2005	2014	50,623,315	-23%
Australian Capital Territory	1990	2014-2015	3,934,100	24%
Baden-Württemberg	1990	2013	80,000,000	-11%
Basque Country	2005	2014	19,331,915	-25%
Bavaria	2011	2012	93,232,000	-1%
Blekinge	1990	2014	614,086	-43%
British Columbia	2007	2014	64,027,000	-3%
Brittany	2005	2010	24,500,000	-2%
California	1990	2014	441,535,020	2%
Carinthia	2005	2014	3,853,096	-19%
Catalonia	2005	2014	43,690,947	-26%
Connecticut	1990	2013	39,988,352	-11%
Drenthe	1990	2013	5,000,000	33%
Emilia-Romagna	1990	2010	50,983,000	50%
Helsinki-Uusimaa	1990	2012	14,509,000	9%
Hesse	1990	2012	37,352,000	-27%
Jalisco	2010	2010	42,001,220	NA <sup>45</sup>
Jämtland	1990	2011	880,000	-24%
La Réunion	2011	2013	4,900,000	4%
Lombardy	2005	2014	64,600,000	-25%
Lower Austria	2005	2014	10,933,000	-16%
Manitoba	2005	2014	21,500,000	3%
Minas Gerais	NA	2013	137,407,705	NA <sup>46</sup>
Minnesota	2005	2012	140,119,000	-7%
New York State	1990	2014	223,230,000	-5%
Newfoundland and Labrador	1990	2014	10,555,000	10%
North Brabant	2014	2014	21,829,362	NA <sup>47</sup>
North Denmark Region	2012	2010	6,223,273	-20%

44 Did not disclose full base year GHG emissions inventory.  
 45 Disclosed base year and latest inventory year are the same.  
 46 Did not disclose base year GHG emissions inventory.  
 47 Disclosed base year and latest inventory year are the same.

North Rhine-Westphalia	1990	2014	292,295,000	-10%
Northwest Territories	2005	2014	1,530,631	-8%
Ontario	1990	2013	171,000,000	-6%
Oppland	1990	2013	1,156,000	-4%
Oregon	1990	2013	58,899,635	5%
Provence-Alpes-Côte-d'Azur	2007	2013	33,000,000	-31%
Québec	1990	2013	81,160,000	-9%
Rio de Janeiro	2005	2010	66,978,140	13%
São Paulo	2005	2013	98,037,080	25%
Scotland	1990	2014	41,885,736	-46%
South Australia	1990	2013-2014	29,729,000	-8%
South Holland	1990	2013	32,000,000	-20%
Vermont	1990	2012	8,269,000	2%
Wales	1990	2014	46,401,948	-18%
Washington	1990	2012	94,100,000	6%

**TABLE KEY**

- Updated disclosure
- New disclosure in 2016

Based on the disclosed base year goals, their collective GHG emissions are 6.3% below their base year. This is slightly more than the 6% as included in the 2015 Disclosure Report. Additionally, while some governments are not yet below their base year, their emissions have peaked and are likely to drop below base year emissions levels during an upcoming inventory update. Next year, the Compact will be able to provide its first 3-year trend analysis series, using disclosed data from 2014, 2015 and 2016.

**Disclosed base years for GHG inventories**



Based on 44 governments disclosing a region-wide GHG inventory

**“I AM PLEASED TO SAY THAT SCOTLAND HAS ACHIEVED ITS EMISSIONS REDUCTION TARGET OF 42% BY 2020 SIX YEARS EARLY WITH EMISSIONS DOWN 45.8% BETWEEN 1990 AND 2014. WE ARE PROUD OF THE PROGRESS WE HAVE MADE BUT WE KNOW WE CAN GO FURTHER. THIS IS WHY IN 2017 THE SCOTTISH GOVERNMENT WILL BRING FORWARD A PACKAGE OF MEASURES TO ENSURE SCOTLAND CONTINUES TO CUT EMISSIONS AND, IN RESPONSE TO THE PARIS AGREEMENT, THERE WILL BE A PROPOSAL FOR NEW LEGISLATION TO SET A MORE STRETCHING TARGET FOR 2020. DEMONSTRATING PROGRESS AND COMMITMENT IS KEY TO MAINTAINING COLLECTIVE ACTION ON CLIMATE CHANGE AND SCOTLAND WILL CONTINUE TO MAKE ITS CONTRIBUTION.”**

**- Roseanna Cunningham MSP, Cabinet Secretary for Environment, Climate Change and Land Reform, The Scottish Government**



To provide the best chance of delivering on the commitment to limit global warming to well below 2 degrees Celsius, global GHG emissions should ideally peak by 2020<sup>48</sup>. In 2016, 32 states, provinces and regions disclosed a near-term GHG emissions reduction target. As shown in Table 13, seven governments have already met or exceeded their 2020 target, representing nearly one-fifth of governments with a 2020 target. These governments are Andalusia, Carinthia, Catalonia, Connecticut, Lombardy, Provence-Alpes-Côte d’Azur, and Scotland, which disclosed in 2015 and 2016, and have made excellent progress on delivering their targets – on average 6 years ahead of schedule.

The progress needed from the remaining governments with near-term targets<sup>49</sup> was calculated as a required rate of annual emissions reduction between the year of last inventory and 2020. Annual rates of emissions reduction to be achieved can be split into three groups:

- 0.1 – 2% group: 8 governments are required to reduce their emissions by 0.1% to 2% per year to meet their 2020 target
- 2.1 – 4% group: 8 governments are required to reduce their emissions by 2% to 4% per year to meet their 2020 target
- 4.1 or more group: 8 governments are required to reduce their emissions by 4% to 15% per year to meet their 2020 target

These rates, although an indicative average only, reflect the magnitude of effort required to deliver on the disclosed 2020 targets<sup>50</sup>.

All governments need to keep up their efforts to reduce their GHG emissions, with those in the 0.1 – 2% group focusing on their 2030 targets as soon as they meet their 2020 targets, and those in the 2.1% and above groups making sure they deliver on the target that is only several years away.

Finally, it is important to note that the magnitude of the remaining efforts depends not only on what governments have achieved up to their current inventory, but also on the level of ambition associated with their 2020 target. For example, Jämtland has already reduced its emissions by 24% below 1990 levels. Nevertheless, their annual reduction rate to 2020 is high in the light of their very ambitious 50% GHG emissions reduction by 2020.

48 UNFCCC, The Fifth Assessment Report of the Intergovernmental Panel on Climate Change, 2014. 49 2 governments with a near-term baseline scenario target and fixed-level target were excluded. 50 Rates are calculated between latest inventory year and 2020. Emissions up to 2016 are already locked-in, so the actual rates might be lower or higher depending on recent progress.

TABLE KEY	
<span style="color: blue;">■</span>	Updated disclosure
<span style="color: green;">■</span>	New disclosure in 2016

This table has been updated in June 2017 to correct Andalusia's progress



Table 13: Progress towards 2020 GHG reduction targets

GOVERNMENT	CURRENT INVENTORY YEAR	REDUCTION TARGET IN 2020	PROGRESS TOWARDS 2020 TARGET			ANNUAL REDUCTION RATE NEEDED TO REACH 2020 TARGET ON TIME
			- 100%	0	100%	
Andalusia**	2014	N/A				Target met or exceeded
Australian Capital Territory	2014-2015	40%				4% or more
Baden Württemberg	2013	25%				2.5%
Blekinge	2014	50%				2.2%
British Columbia	2014	33%				4% or more
Brittany	2010	17%				1.7%
California**	2014	N/A				0.4%
Carinthia*	2014	16%				Target met or exceeded
Catalonia	2014	25%				Target met or exceeded
Connecticut	2013	10%				Target met or exceeded
Drenthe	2013	20%				4% or more
Emilia-Romagna	2010	20%				4% or more
Hesse	2012	30%				0.4%
Jämtland	2011	50%				4% or more
La Réunion	2013	10%				2.1%
Lombardy*	2014	20%				Target met or exceeded
Lower Austria*	2014	16%				0.1%
Manitoba	2014	15%				3.2%
Newfoundland and Labrador	2014	10%				3.4%
North Brabant	2014	8%				1.4%
North Denmark Region	2010	35%				2.1%
North Rhine-Westphalia	2014	25%				3.0%
Ontario	2013	15%				1.4%
Oppland	2013	30%				4% or more
Oregon	2013	10%				2.3%
Provence-Alpes-Côte-d’Azur	2013	20%				Target met or exceeded
Québec	2013	20%				1.9%
São Paulo	2013	20%				4% or more
Scotland	2014	42%				Target met or exceeded
Wales	2014	40%				4% or more
Washington**	2012	N/A				0.8%

\*Target applies to EU non-ETS emissions

\*\*For Andalusia, California and Washington, only the annual reduction rates needed to achieve their 2020 goals were calculated due to the regions having fixed-level goals.

**“THE COMPACT OF STATES AND REGIONS PROVIDES THE MUCH NEEDED PLATFORM FOR STATE AND REGIONAL GOVERNMENTS TO SHARE THEIR SUCCESSES AND CHALLENGES IN ONE COMMON PURSUIT: TO COMMIT TO GHG EMISSIONS REDUCTIONS AND MAKE THE WORLD A BETTER AND MORE PROSPEROUS PLACE.”**

- Dr Alice Ekwu, The Honourable Commissioner for Climate Change and Forestry,  
Cross River State



**PROGRESS THROUGH DEDICATED ACTION**

States, provinces and regions are achieving progress on their emissions reductions targets through a myriad of climate actions. This includes a wide variety of standards, programs and projects that are implemented in order to achieve region-wide emissions reductions and sector specific or energy efficiency targets. Examples of climate actions include support to develop clean energy sources, retrofit programs for existing buildings, and improving energy efficiency in industrial processes.

The specific actions that are being implemented to meet reduction targets can vary greatly across regions. This variability is due in part to differing levels of power over climate policy, which dictate whether actions are possible from a legal perspective. For example, a region must have authority over distributed power generation in order to install certain types of clean power, such as combined heat and power (CHP)<sup>51</sup>. Also at play are regional differences in geography that make certain actions or technologies impossible, such as geothermal or tidal power.

Different distributions of power can lead to regions taking different paths to achieve the same climate action. For example, the region of Helsinki-Uusimaa indicated that they were taking action to install CHP in buildings, and reported that 63% of heating of buildings in the region is currently district heating, which they achieved through the direct installation of CHP. Similarly, the North Denmark region also disclosed that the majority of existing buildings in their region are currently powered by a central heating system using CHP. Meanwhile, Basque Country reported that it has a grant program for the study, investment and update of CHP installations, indicating that the region is using financing rather than legislation to take action in this area. Alberta notes a different tactic, reporting that a regulation limiting industrial emissions has driven increased adoption of cogeneration across industrial facilities.

Other actions are implemented very similarly across regions, with differences primarily being in relation to the scale of the action. Alberta, Brittany, California, Newfoundland and Labrador, Northwest Territories, and Gujarat all reported that they were establishing a region-wide plan to reduce short-lived climate pollutants from industry, such as methane, black carbon, O3, and hydrofluorocarbons (HFCs). At the same time, Jämtland disclosed that they were implementing a more limited program to reduce HFCs in its hospitals. In each case the region reported that they were regulating a specific short-lived climate pollutant and the differences are between region-wide implementation of the regulation versus regulation of a specific type of emitter.

In 2016, 58 of the 62 disclosing governments decided to voluntarily disclose specific climate actions across ten economic sectors. Collectively, these governments disclosed that they were currently taking 1,299 individual climate actions, and that they planned to take a further 160 actions over the next two years.

States, provinces and regions are leading on a wide variety of actions to address climate change, from large-scale actions such as the development of carbon markets, to multi-stakeholder collaboration with other levels of government, business and small-scale pilot projects or programs with limited implementation within the region. The most commonly taken actions in Table 14 illustrate the breadth of measures that states and regions are taking to meet their emissions reductions targets. These actions cut across the climate strategies of state and regional governments as they have been disclosed by at least 80% of the responding governments.

<sup>51</sup> American Council for Energy-Efficient economy, CHP Five Years Later: Federal and State Policies and Programs Update <http://aceee.org/research-report/ie031>, January 2003.



**Table 14: Most common sectoral climate actions and planned actions**

	<b>KEY CLIMATE ACTIONS</b> Disclosed by at least 80% of disclosing governments	<b>KEY PLANNED ACTIONS</b> Disclosed by at least 15% of disclosing governments as an action planned in the next 2 years
<p><b>AGRICULTURE</b></p> 	<ul style="list-style-type: none"> <li>- Promote sustainable farming practices</li> </ul>	
<p><b>BUILDINGS AND LIGHTING</b></p> 	<ul style="list-style-type: none"> <li>- Improve heating and cooling efficiency</li> <li>- Increase awareness/engage public on energy efficiency/clean energy programs</li> <li>- Install energy efficient lighting systems</li> <li>- Install solar electricity</li> <li>- Promote building energy performance rating/certification/benchmarking</li> <li>- Promote energy efficient appliances</li> </ul>	<ul style="list-style-type: none"> <li>- Install geothermal heating</li> </ul>
<p><b>ENERGY</b></p> 	<ul style="list-style-type: none"> <li>- Install solar power</li> <li>- Install wind power</li> </ul>	<ul style="list-style-type: none"> <li>- Enable net metering</li> <li>- Install CHP or trigen</li> <li>- Install microgrids</li> <li>- Install geothermal power</li> <li>- Replace coal-fired/inefficient power stations</li> </ul>
<p><b>FINANCE AND ECONOMY</b></p> 	<ul style="list-style-type: none"> <li>- Invest in clean tech R&amp;D</li> </ul>	<ul style="list-style-type: none"> <li>- Support clean tech companies</li> </ul>
<p><b>GOVERNANCE</b></p> 	<ul style="list-style-type: none"> <li>- Collaborate with cities/local governments in reducing emissions/increasing resilience</li> <li>- Collaborate with national governments in reducing emissions/increasing resilience</li> <li>- Collaborate with other states/regions in reducing emissions/increasing resilience</li> <li>- Support businesses in reducing emissions/increasing resilience</li> </ul>	

## INDUSTRY



- Improve energy efficiency of industrial processes

- Establish region-wide plan to reduce short-lived climate pollutants (i.e. methane, black carbon, O3, HFCs)

## LAND USE



- Promote conservation efforts for natural areas
- Promote sustainable forest management
- Undertake environmental impact assessments

## TRANSPORT



- Improve bus services
- Install electric vehicle charging infrastructure

- Adopt high speed rail
- Switch freight from trucks to rail
- Switch to electric/hybrid vehicles in cars/taxis/government fleets
- Switch to other lower-carbon fuel in cars/taxis/government fleets

## WASTE



- Adopt source separation policies
- Establish waste reduction/recycling plan
- Increase awareness/engage public on waste reduction/recycling measures
- Install municipal recycling points or centers

Actions that regions are currently taking show how they have made progress on achieving their climate targets so far. Equally important are the actions that regions are planning in the near future as this demonstrates how they plan to maintain momentum and remain on track over time. Disclosing governments signalled 160 new actions to be implemented through 2018. These planned actions are often the logical next steps from the actions that regions are currently taking, and help to illustrate how the implementation of individual actions evolve to achieve deep emissions reductions over time.

For example, in the **transport sector**, a commonly disclosed planned action is to switch to electric/hybrid vehicles in cars/taxis/government fleets within the next two years. Charging infrastructure taken alone does not lead to emissions reductions, but it is essential in the transition to electric or hybrid vehicles. This connection is reflected in the actions disclosed by Catalonia, where expanded installation of electric vehicle charging infrastructure was underway in 2016 and new legislation was planned which will require purchases of new vehicles for government fleets to be electric/hybrid vehicles or use clean fuels.

Similarly, in the **finance and economy sector**, governments disclosed that they were currently investing in clean technology research and development, and they plan to support cleantech companies in the future. States and regions are investing in clean technology innovators and entrepreneurs through R&D funding, which helps to move promising ideas into the marketplace, and once launched they continue to provide support by filling financing gaps. For example, Manitoba reported that it is currently investing in clean technology R&D in the areas of renewables, clean transport, agriculture and green buildings, and that they plan to provide financial support for renewable energy companies through their new Energy Opportunities Office<sup>52</sup>.

52 Province of Manitoba, Energy Opportunities Office, <http://www.gov.mb.ca/jec/energy/opportunities.html>.

When it comes to **governance**, states and provinces are indicating that they were already collaborating with their government counterparts, cities and businesses, underscoring the commitment to share learnings across different levels of governments to fulfil the Paris Agreement.

Climate actions can range from region-wide initiatives to small pilot programs and early-stage actions can demonstrate the efforts that regions are making to test new technologies or policies, or diversify their **energy** supply. Oppland, for example, disclosed pilots to install wind power and improve transmission lines for renewables, which highlights the region's efforts to integrate other renewables and add flexibility to their power supply.

Yucatán also reported a pilot project for wind, as well as another for solar, which are funded with private investments. With final implementation in 2018, the five projects in solar power and four in wind power will generate approximately 1,020,333 MWh/year and 798,290 MWh/year, respectively. As the bulk of the region's emissions come from the energy industry, the government has incorporated renewables goals into the Climate Change State Action Plan to begin a transition to a cleaner power supply.

In addition to limiting emissions from generation, for long-term emissions reductions targets to be achieved, it is also necessary to reduce emissions from energy consumption. To this end, states and regions reported that they are launching comprehensive, region-wide energy efficiency projects in two sectors which contribute significantly to GHG emissions; the **buildings and lighting sector** and the **industry sector**. Minnesota, for example, has a state-wide energy efficiency resource standard in place, alongside state-wide energy codes for buildings, which serve to move the market towards installation of high-efficiency HVAC<sup>53</sup> systems. To promote energy efficiency in industry, Alberta enacted the Specified Gas Emitters Regulation, which requires facilities that emit 100,000 tons or more of GHG emissions a year to reduce their emissions intensity. The region reports that as of June 2016, the regulation has achieved cumulative reductions of 69 MtCO<sub>2</sub>e through operational changes and investing in Alberta-based carbon offsets.

## THE ROAD AHEAD

The leadership of states and regions leadership and the willingness to deliver on the Paris Agreement is illustrated not only by the wide variety of climate actions that underpin their ambitious targets, but also in their enthusiasm in disclosing these actions, publically and to each other. By sharing details on the steps that they are taking, states and regions are demonstrating that their targets go beyond aspiration, encouraging other governments to understand and learn from their current policies and programs, and creating a collective knowledge base of climate action. This commitment to transparency and knowledge sharing will allow states, provinces and regions to go even further in the years to come.

Importantly, our analysis shows how the short-term ambition of these disclosing governments puts them on a trajectory to mitigate the impacts of climate change. Progress to deliver on that ambition is also underway, with a large majority of governments having already reduced their GHG emissions considerably and continuing to revise their climate strategies by introducing new interim targets and increasing their ambition. Yet, more has to be done. The world has no time to lose when it comes to combatting climate change. With 2020 around the corner, attention must turn to mid and long-term targets, complemented with deep decarbonisation pathways, which help to create a roadmap for current and future climate actions.

The Compact of States and Regions brings together leading states, provinces and regions looking to ensure resilient, clean and prosperous economies. With a great diversity in geography, culture, and socioeconomics, they are united in taking their collective responsibility to monitor progress against their climate targets. Together, they lead the way to a more transparent and collaborative approach to climate action.

53 Heating, ventilation and air conditioning.

## LIST OF FIGURES

Figure 1: Governments reporting to the Compact of States and Regions	8
Figure 2: Comparison of projected Compact GHG emissions with IEA scenarios: 2010 to 2050	12

## LIST OF TABLES

Table 1: Annual and cumulative GHG savings potential	9
Table 2: Region-wide GHG targets	16
Table 3: Selected sectoral GHG targets	23
Table 4: Target shares of renewables in energy mix (total final energy consumption)	24
Table 5: Target shares of renewables in energy mix (total primary energy supply)	25
Table 6: Target shares of renewables in electricity mix (consumption)	25
Table 7: Target shares of renewables in electricity mix (production)	25
Table 8: Selected technology specific renewable energy targets	26
Table 9: Energy efficiency targets (as an increase in energy efficiency)	27
Table 10: Energy efficiency targets (as a decrease in energy use)	28
Table 11: Selected sectoral energy efficiency targets	28
Table 12: GHG emissions trends from base year	31
Table 13: Progress towards 2020 GHG reduction targets	35
Table 14: Most common sectoral climate actions and planned actions	39

## ACKNOWLEDGEMENTS

### Authors:

**Chris Thorpe**, CDP

**Jean-Charles Seghers**, The Climate Group

**Jody Dean**, The Climate Group

**Juliette Baralon**, The Climate Group

**Libby Ferguson**, The Climate Group

### Data Analysis:

**Chris Thorpe**, CDP

**Jean-Charles Seghers**, The Climate Group

**Jody Dean**, The Climate Group

**Juliette Baralon**, The Climate Group

**Maia Kutner**, CDP

**Pedro Faria**, CDP

Editor: **William Brittlebank**, The Climate Group

Design: **Jo Violaris**, The Climate Group

Project Management: **Jean-Charles Seghers**, The Climate Group

For more information, please contact the below organizations.

## THE CLIMATE GROUP

### About The Climate Group

The Climate Group is an award-winning, international non-profit. We specialize in bold, catalytic and high-impact climate and energy initiatives with the world's leading businesses and state and regional governments. Our work is at the forefront of ambitious climate action.

Our vision is a world of prosperous 'net zero' emission economies and thriving, sustainable societies.

Our mission is to catalyze climate leadership in government and business to accelerate the shift to a prosperous and thriving 'net zero' future for all. We do this by communicating to inform, convening to connect, and collaborating to scale and succeed.

Founded in 2004, our offices are located in Beijing, Hong Kong, New Delhi, New York and London.

[www.TheClimateGroup.org](http://www.TheClimateGroup.org)

[info@TheClimateGroup.org](mailto:info@TheClimateGroup.org)



### About CDP

CDP, formerly Carbon Disclosure Project, is an international, not-for-profit organization providing the global system for companies, cities, states and regions to measure, disclose, manage and share vital information on their environmental performance.

Voted number one climate research provider by investors, CDP works with 827 institutional investors with assets of US\$100 trillion and 89 purchasing organisations with a combined annual spend of over US\$2.7 trillion, to motivate companies to disclose their impacts on the environment and natural resources and take action to reduce them.

Over 630 cities, states and regions and some 5,800 companies, representing close to 60% global market capitalization, disclosed environmental information through CDP in 2016. CDP now holds the most comprehensive collection globally of primary corporate, city, and state and regional environmental data and puts these insights at the heart of strategic business, investment and policy decisions.

[www.CDP.net](http://www.CDP.net)

[StatesandRegions@CDP.net](mailto:StatesandRegions@CDP.net)

# COMPACT OF STATES AND REGIONS

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IN PARTNERSHIP WITH  CDP  
DRIVING SUSTAINABLE ECONOMIES