Court of Appeal File No.: C65807

COURT OF APPEAL FOR ONTARIO

IN THE MATTER OF A REFERENCE to the Court of Appeal pursuant to section 8 of the *Courts of Justice Act*, RSO 1990, c. C.34, by Order-in-Council 1014/2018 respecting the constitutionality of the *Greenhouse Gas Pollution Pricing Act*, Part 5 of the *Budget Implementation Act, 2018, No. 1*, SC 2018, c. 12

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PART I: OVERVIEW

1. IETA is a non-profit organization with over one hundred and fifty (150) Canadian and international business and industry members that are committed to facilitating progressive, low cost, market-based approaches to address climate change. IETA has been a leading Canadian and international business voice on carbon pricing and climate finance, for nearly two decades. Many of IETA's members will be directly regulated by the federal *Greenhouse Gas Pollution Pricing Act* (the "**Act**") and provincial carbon pricing regimes, and IETA is one of the only intervenors with members including regulated emitters. IETA's general support for market-based approaches/carbon pricing is underpinned by its members' commitment to environmental integrity, inter-jurisdictional harmonization, and facilitating least-cost approaches to addressing the pressing issue of climate change.

Affidavit of Kathleen Eleanor Sullivan at paras 4, 8.

2. IETA submits that the Act, which has yet to be fully implemented, is constitutional. The Act in pith and substance seeks to decrease greenhouse gas ("**GHG**") emissions in a cost-effective manner by (i) placing a regulatory charge on the delivery, use, and import of fossil fuels, and (ii) setting emissions standards and flexible compliance trading obligations on industrial emitters, in a manner consistent with Canada's obligations under the *Paris Agreement* and the Canada-European Union Comprehensive Economic Trade Agreement. This appears to fall within the federal government's shared jurisdiction over the environment and existing jurisdiction over trade and commerce (s. 91(2) of the *Constitution Act, 1867* (the "***Constitution***") and international treaties. To the extent that the Act also contains a number of prohibitions and penalties for entities that are not in compliance with the GHG charge and standards, it may also fall within the federal government's criminal law power (under s. 91(27) of the *Constitution*).

> *Canada (AG) v Ontario (AG)*, [1937] AC 326 (PC), [1937] 1 DLR 673 [*Labour Conventions*] [**Joint Book of Authorities ("JBOA"), Vol. I, Tab 10**].

3. However, to the extent that the operation of the Act (upon its full implementation) has the effect of making a validly enacted provincial carbon pricing regime of greater GHG-reducing stringency inapplicable, inoperable, or the Act encroaches upon the core elements of an area of exclusive provincial jurisdiction (in particular exclusive provincial jurisdiction over electricity facilities under s. 92A(1)(c) of the *Constitution*) it should be interpreted in a manner that reflects the express balance of powers in the *Constitution*. Specifically, any conflict of jurisdiction that may arise when the Act is fully implemented should be resolved in a manner that is consistent with the principles of cooperative federalism, subsidiarity, interjurisdictional immunity, and the constitutional competence afforded to Parliament and the Provinces, under ss. 91, 92, and 92A of the *Constitution*.

PART II: FACTS

4. IETA generally adopts and agrees with the facts as set out in the facta of Ontario and Canada, subject to the following clarifications.

5. The evidence adduced by Ontario and Canada (and the other intervening Attorneys General) supports the **federal-provincial consensus view** that climate change: (a) is real and human activities are a major cause, (b) is already having a disruptive impact across Canada with more severe potential future impacts, (c) warrants proactive action, and (d) GHG emissions are a matter of international, regional, national, provincial, and local concern.

> Factum of the Attorney General of Canada at paras 7, 9, 10; Factum of the Attorney General of Ontario at para 6; Factum of the Attorney General of British Columbia at paras 9–11; Factum of the Attorney General of New Brunswick at paras 2, 5.

6. The risks of climate change are significant, increasing, and require prompt and coordinated action to avoid anticipated impacts. There are climate-related business/commerce

risks and investment opportunities that require meaningful government and business action to address and respond to climate change. Robust, least-cost approaches to carbon pricing, which are both environmentally and politically sustainable, are critical to business and investment.

Affidavit of Kathleen Eleanor Sullivan at paras 8, 10, 12.

7. Canada and the Provinces have each been grappling with climate change policy and related market mechanisms since the ratification of the United Nations Framework Convention on Climate Change ("**UNFCCC**") in 1994, and subsequent protocols and agreements in 2002, 2009, and 2015. A number of Provinces have enacted valid climate legislation and carbon pricing schemes, with some success. However, attempts to harmonize and coordinate federal and provincial climate actions and markets have been limited and often impeded. Consequently, both the nature and extent of the GHG emissions reduction challenge and climate impacts in Canada have increased over the intervening period since 1994.

8. The October 2018 Intergovernmental Panel on Climate Change Special Report *Global Warming of 1.5ºC*, Summary for Policy Makers recently highlighted the increasing risks and challenges in responding to climate change as additional time passes. Canadian and international businesses are being called upon to help address and respond to those risks, and related opportunities, in a legal and policy environment that requires certainty and a legislative approach that is consistent with cooperative federalism.

Affidavit of Kathleen Eleanor Sullivan at paras 1–12, 14 and Appendix.

9. The market mechanisms available under Article 6.2 of the *Paris Agreement*, for example, provide for GHG reduction and trading opportunities that are currently not being harnessed, and appear to require the coordination of the federal and provincial governments acting cooperatively and within their jurisdictional spheres of competence

Paris Agreement, art. 6.2 [**BC Book of Authorities, Tab 38**]; Affidavit of Kathleen Eleanor Sullivan at para 8.

10. Canadian and international business and industry are directly affected by the commercial and trade risks and impacts of climate change, as well as the legislative responses to it. There are any number of policy approaches that may help address climate change, but IETA believes that systems including carbon pricing through efficient emissions markets have the best potential to deliver low cost emissions reductions over the required timelines.

11. There appears to be **aligned federal-provincial support** for carbon pricing as each and all of Ontario, Canada, Saskatchewan, British Columbia, and New Brunswick appear to be proposing or using some form of carbon pricing in their legislative and regulatory responses to climate change.

Government of Ontario, *Preserving and Protecting our Environment for Future Generations: A Made-in-Ontario Environment Plan* (Novemnber 29, 2018) at p. 26 [**Record of the Attorney General of Ontario, Vol. 1, Tab 4**] and Government of Ontario, *Making Polluters Accountable: Industrial Emission Performance Standards* (Regulatory Proposal), February 2019 [**IETA Book of Authorities ("IETA BOA"), Tab 5**] (Ontario); the Act and Factum of the Attorney General of Canada at paras 15, 33–34 (Canada); *The Management and Reduction of Greenhouse Gases Act*, SS, c. M-2.01, ss. 16.1, 21 [**Saskatchewan Book of Authorities, Tab 29**] and Factum of the Attorney General of Saskatchewan at para 9 (Saskatchewan); *Carbon Tax Act*, SBC, c. 40, ss. 8-13.1) [**IETA BOA, Tab 1**] (British Columbia); *Climate Change Act*, SNB 2018, c. 11, s 6 [**IETA BOA, Tab 2**] and *Gasoline and Motive Fuel Tax Act*, RSNB 1973, c. G-3, ss. 3(1), 6(1) [**IETA BOA, Tab 3**] (New Brunswick).

12. The Act regulates specified GHGs from defined activities (not all GHGs from all activities) in order to assist Canada in achieving its 2030 national emissions target of 512 Mt CO_2e (not 517 Mt CO_2e). IETA accepts that behavioural change may be a purpose of the Act. The Act, and the portions of the preamble of, and debates on, the Act excerpted by Canada, do not indicate that this is the sole or the "key purpose" of the Act.

Factum of the Attorney General of Ontario at paras 1, 4, 51, 67, 78; Factum of the Attorney General of Canada at para 17 (indicates 517 Mt CO_2e, in contrast with

Affidavit of John Moffet at para 64); Factum of the Attorney General of Canada at paras 31–32.

13. The central provisions of the Act are outlined below in **Table 1. Summary of the Act**:

Table 1. Summary of the Act		
Key Provision(s)	**Section(s)**	**Summary**
Charge on fuel deliveries by distributors	17(1); 18(1); 19(1)-(2)	Charge on fuel delivered to another person or used by a distributor in a listed province, or imported into a listed province. Amounts of charge to be determined in accordance with s. 40 and escalating to $50/tonne by 2023.
Price on excess emissions from industrial facilities (OBPS)	174(1)-(2)	Obligation to compensate for GHGs emitted at covered facility above an applicable regulatory emissions limit. Compensation due for emissions over limit through: • remittance of compliance units (which, per s. 175, are awarded to covered facilities that emit GHGs in a quantity below applicable limit or units otherwise eligible as offsets); • payment of excess emissions charge (same as applicable fuel charge; or • a combination of both.
Penalties	132; 133(2); 135; 136; 232-233	Penalties for failure to file or make return when required, failure to pay a charge, or failure to comply with specific obligations or other provisions; range of punishments.
Trading (compliance units)	192(l); Affidavit of John Moffet, Exhibit AA	Regulations may address compliance units, including transfers of compliance units, offsets, the circumstances under which transfers of compliance units are prohibited and the recognition of units or credits issued by a person other than the Minister as compliance units.
Accounts for Tracking and Trading	186(1)	Covered facility must have account in compliance tracking system in accordance with criteria set out in regulations; other persons may have accounts in compliance tracking system for purpose of trading compliance units.
Stringency	166(2)-(3) and 189(1)-(2)	Regulation or order may amend list of provinces and territories for purposes of fuel charge and OBPS. In making regulation or order, must take into account as the primary factor, stringency of provincial pricing mechanisms for GHG emissions. The current "stringency test" for stringency is largely set out in the Pan-Canadian Approach to Pricing Carbon Pollution.

14. The broad range of industrial activities and facilities covered by the output based performance standards ("**OBPS**") covered by the Act include: natural gas pipelines and transmission; petroleum refineries; extracting, processing, or upgrading of crude oil, synthetic crude oil, heavy oil, bitumen, or secondary petroleum products; production of anhydrous/aqueous ammonia; production of nitric acid from catalytic oxidation of ammonia; smelting or refining of nickel, copper, zinc, lead, or cobalt; producing cement from clinker; producing industrial/fuel grain ethanol and ethanol for human consumption; processing potatoes/oilseeds for human or animal consumption; generating electricity from fossil fuels; producing iron ore pellets; producing steel from scrap iron/steel feedstock; producing lime from limestone using a kiln; producing metal or diamonds from ore or kimberlite; producing coal, char, activated carbon; processing natural gas; processing potash; producing pulp, bricks, metal tubes, iron, steel, glass, gypsum panels, wool insulation, hydrogen, resins/Nylon fibres, carbon black, petrochemicals, citric acid, 2-methylpentamethylenediamine; producing human/animal vaccines, refined sugar from raw cane sugar; processing corn, assembling certain four-wheeled self-propelled vehicles.

SOR/2018-213, *Notice Establishing Criteria Respecting Facilities and Persons and Publishing Measures*, s 3 **[IETA BOA, Tab 4]**.

15. The Act does not: regulate all emissions, all gases, all pollution, all of the environment, or impose *across the board price regulation for all carbon-based energy*.

Factum of the Attorney General of Ontario at para 67.

16. The key provisions of the Act include: (i) a regulatory charge on fossil fuel delivery, use and imports (ss. 17(1), 18(1), 19(1)-(2)); (ii) GHG emissions standards and flexible compliance trading for industrial facilities/activities (ss. 174(1)-(2); (iii) a system of accounts for trading and tracking GHG emissions (s. 186(1)); (iv) prohibitions and penalties for non-compliance (ss.

132, 133(2), 135, 136, 232-233); and (v) a stringency test for determining its application (ss. 166(2)-(3) and 189(1)-(2).

17. The preamble and Hansard cited by Canada also appear to confirm that the central purpose of the federal government was to decrease GHG emissions in a cost-effective manner through a bifurcated carbon pricing mechanism that is consistent with Canada's obligations under the *Paris Agreement*.

Factum of the Attorney General of Canada at paras 32–33.

18. The **dominant purpose** of the Act therefore appears to be to decrease GHG emissions in a cost-effective manner by (i) placing a charge on the delivery, use, and import of fossil fuels, and (ii) setting emissions standards and compliance obligations on industrial emitters with compliance unit trading flexibility, in a manner consistent with Canada's obligations under the *Paris Agreement*.

PART III: ISSUES, ARGUMENT AND LAW

19. The question posed by Ontario in this Reference is whether the Act is constitutional in whole or in part. IETA submits that the Act, which has yet to be fully implemented, and the carbon pricing and trading system it includes, appears to fall within the federal government's concurrent jurisdiction over the environment, and existing jurisdiction over trade and commerce under s. 91(2) of the *Constitution*. It imposes a valid regulatory charge, GHG emission standards on industrial facilities, and a related trading regime, with penalties for non-compliance. The Act is consistent with international treaties that the federal government has validly entered into. It may also fall within the federal government's criminal law power under s. 91(27) of the *Constitution*.

20. However, to the extent that the operation of the Act (upon its full implementation) has the effect of making a validly enacted provincial carbon pricing regime of greater GHG

reducing stringency inapplicable, inoperable, or the Act encroaches upon the core elements of an area of exclusive provincial jurisdiction (in particular exclusive provincial jurisdiction over electricity facilities under s. 92A(1)(c) of the *Constitution*), it should be interpreted in a manner that reflects the express balance of powers in the *Constitution* and read down if required.

21. ***IETA submits that no single issue begs for the promise of cooperative federalism in Canada to be realized, more than climate change.*** Neither the federal nor the provincial governments have exclusive jurisdiction over climate change or reducing GHG emissions through carbon pricing. The action of both levels of government acting within their constitutional spheres of competence is required to achieve the purpose of mitigating climate change through efficient carbon pricing in a manner consistent with the *Paris Agreement*.

Labour Conventions [**JBOA, Vol. I, Tab 10**].

(i) The pith and substance of the Act

22. In order to determine whether the Act is *intra vires* Parliament, we are guided by the test as set out in *Crown Zellerbach*. First, we consider the purpose and effect of the Act and then consider whether the pith and substance of the Act falls within a valid head of federal power.

R v Crown Zellerbach Canada Ltd., [1988] 1 SCR 401 [**JBOA, Vol. III, Tab 40**].

23. As indicated in paragraphs 13 through 18, above, the key provisions of the Act, and the preamble, Hansard and debates on the Act, appear to confirm that the central purpose of the Act is to decrease GHG emissions in a cost effective manner through a bifurcated carbon pricing and compliance trading mechanism that is consistent with Canada's obligations under the *Paris Agreement*. The effect of the Act is to establish national carbon pricing that allows for a variety of provincial approaches and potentially inter-provincial compliance trading.

24. The dominant purpose, or pith and substance, of the Act therefore appears to be to decrease GHG emissions in a cost-effective manner by (i) placing a charge on the delivery, use, and import of fossil fuels, and (ii) setting emissions standards and compliance obligations with trading flexibility on industrial emitters, in a manner consistent with Canada's obligations under the *Paris Agreement*.

25. The dominant purpose Act does not appear to be to raise and collect revenue, nor does it appear to be to regulate all GHG emissions from all sources. The Act does not regulate all of the environment or all pollution broadly, or all gases from all sources. The Act itself does not support such characterization as it does not apply to agricultural, biogas, and a number of other sources of GHG emissions in Canada.

26. The effect of the Act is to set regulatory charges[1] that apply to fossil fuels and establish GHG emissions standards for industrial facilities and a compliance emissions trading regime, with penalties for non-compliance. In doing so, Canada's expert and other evidence substantiates that this will reduce GHG emissions in Canada in an economically efficient manner and assist Canada in meeting its international treaty obligations in the *Paris Agreement*.

> Record of the Attorney General of Canada, Affidavit of John Moffett, Tab Z: Environment and Climate Change Canada, 2018, "Estimated Results of the Federal Carbon Pollution Pricing System".

(ii) The pith and substance falls within the federal power over trade and commerce

27. IETA submits that the purpose and effect of the Act which prices carbon and provides a flexible compliance unit trading regime for a wide range of industrial facilities appears to fall within the general trade and commerce power as set on in s. 91(2) of the *Constitution*. The Act meets the five indicia of federal competence as set out by Dickson C.J. in *General Motors*, and

[1] IETA relies upon the Attorney General of Canada's submissions at paras 78–91 of its Factum in relation to regulatory charges and paras 92–96 in the alternative that the charges are considered a tax.

more recently applied in by the Supreme Court in the *Securities Reference* and the *Pan-Canadian Securities Regulation Reference.*

> *General Motors of Canada Ltd. v City National Leasing*, [1989] 1 SCR 641 at 661 [**JBOA, Vol. II, Tab 23**]; *Reference re Securities Act,* 2011 SCC 66 at para 70 [*Securities Reference*] [**JBOA, Vol. IV, Tab 50**]; *Reference re Pan-Canadian Securities Regulation*, 2018 SCC 48 [**JBOA, Vol. IV, Tab 48**].

28. First, the Act sets out and is part of a general regulatory scheme to reduce GHG emissions through carbon pricing of fossil fuels and industrial facilities. Second, while the upstream fuel charges are administered through the Minister of National Revenue, the OBPS, the emissions trading, and the related accounts to effect compliance and related penalties and ultimate compliance with Canada's obligations under the *Paris Agreement* are under the responsibility of, and administered by, the Minister of Environment and Climate Change Canada.

29. The legislative and regulatory regime set out in the Act implements a system of charges, standards and trading that is implementing the *Paris Agreement*, an international treaty that Canada validly entered into, supported by Canada's Provinces. The *Paris Agreement* and the overarching UNFCCC are both supported by Canada's concurrent jurisdiction over the environment and powers over international trade and commerce. Neither the treaties nor federal administrative/compliance actions under them appear to be subject to jurisdictional challenge.

> *Labour Conventions* [**JBOA, Vol. I, Tab 10**].

30. Second, the Act applies broadly to the fuel importers/distributors and to effect emission reductions and trading among a wide range of industrial facilities outlined in paragraph 14, above. It does not apply only to a particular industry or industry sector.

31. As set out in paragraphs 5 and 11, above, climate change and decreasing GHG emissions though an efficient, lower-cost system of carbon pricing that is consistent with

Canada's *Paris Agreement* obligations is matter of genuine national importance and scope that goes to trade as a whole in a way that is distinct from provincial concerns. Canadian and international business involved in commerce and trade of various products and services require policy consistency and certainty in order to address leakage and competitiveness concerns, make long term investment decisions, and undertake prudent business planning.

32. In the twenty-five years that have now followed the ratification of the UNFCCC, the Provinces acting together or alone have been unable to fully implement a national system of carbon pricing or otherwise address the economic issues required to deal with reducing Canada's GHG emissions. In the last twenty-five years Canada-wide emissions have increased, as have climate-related business and competitiveness concerns.

33. While the Provinces may validly enact provincial carbon pricing and trading legislation, they have not and cannot, either acting alone or in concert, validly enact the nation-wide OBPS, an inter-provincial compliance trading regime, and system of accounts that are included in the Act in a manner that is supported by the constitutional jurisdiction afforded to only the Provinces.

Factum of the Attorney General of Canada at paras 68–70.

34. IETA supports the view of the Attorney General of British Columbia on this limited point and the view that the failure to include one or more of the provinces in the carbon pricing and industrial emissions trading system included in the Act, either directly or through equivalency, would jeopardize its successful operation in other parts of the country. Specifically, British Columbia speaks to the competitiveness impacts faced by its cement industry that are attributed to inconsistent or non-existent carbon pricing in other Provinces.

Factum of the Attorney General of British Columbia at para 18.

35. Finally, IETA notes that the Supreme Court has taken a broad and purposive view of the general trade and commerce indicia noting that they are not exhaustive, nor is it necessary that they be present in every case. IETA encourages this Court to take a similar approach and find that the pith and substance of the Act is a valid exercise of the federal government's jurisdiction under s. 91(2) of the *Constitution*.

Securities Reference [**JBOA, Vol. IV, Tab 50**].

(iii) Alternatively, the pith and substance falls within the criminal law power

36. IETA submits, in the alternative, that the Act is a constitutional exercise of Parliament's criminal law power pursuant to s. 91(27) of the *Constitution*.

37. As a general rule, legislation may be classified as criminal law if it possesses three elements: (i) a valid criminal law purpose backed by (ii) a prohibition and (iii) a penalty. The pith and substance of the Act includes a criminal law purpose that is backed by a prohibition intended to reduce GHG emissions, coupled with a penalty for non-compliance. The Act imposes a regulatory charge on fossil fuel delivery, use, and imports and GHG emission standards. Each of these elements of the Act are prohibitions that are backed up by respective penalty schemes.

38. The Supreme Court of Canada held in *Hydro-Québec* that a regulatory scheme to control the emission of toxic substances was valid pursuant to the criminal law power. LaForest J concludes that the protection of the environment through prohibitions against toxic substances constitutes a "wholly legitimate public objective in the exercise of the criminal law power." The carbon pricing regulatory scheme that is set out in the Act supports the objective of decreasing GHG emissions to help address the pressing and legitimate objective of mitigating climate change. The Act, in ss. 132, 133(2), 135, 136, 232, and 233 includes express

prohibitions and penalties related to emitting GHGs that are expressly ties to that legitimate public purpose.

R v Hydro-Québec, [1997] 3 SCR 213 at para 132 [**JBOA, Vol. III, Tab 41**].

(iv) If the Act, when fully implemented, has the effect of encroaching upon more stringent GHG-provincial carbon pricing schemes or areas of exclusive provincial jurisdiction, it must be read down

39. An increasing number of Provinces now have valid and operative legislative regimes that reduce GHG emissions in an economically efficient manner through the use of carbon pricing. There is no indication in the Act, or otherwise, that such valid provincial carbon pricing regimes will not continue to operate when the federal Act is implemented and the Attorney General of Canada attempts to confirm same.

Factum of the Attorney General of Canada at para 74–77.

40. While IETA anticipates that federal and provincial carbon pricing regimes will eventually undergo some degree of harmonization, it is possible that there may be either (i) areas of overlap between provincial and federal carbon pricing regimes or (ii) unanticipated effects that materially impact areas of exclusive provincial jurisdiction. In particular, it is unclear how the yet-to-be-finalized, federal OBPS for electricity generation may impact electricity generation facilities and provincial exclusive jurisdiction over them pursuant to s. 92A(1)(c) of the *Constitution*. This issue does not yet appear to be ripe for the Court's review.

41. IETA respectfully requests that the Court affirm that if the Act (upon its full implementation) has the effect of making a validly enacted provincial carbon pricing regime of greater GHG reducing stringency inapplicable, inoperable, or the Act encroaches upon the core elements of an area of exclusive provincial jurisdiction (in particular exclusive provincial jurisdiction over electricity facilities under s. 92A(1)(c) of the *Constitution*), the Act should be interpreted in a manner that reflects the express balance of powers in the *Constitution*.

Specifically, any conflict of jurisdiction that may arise when the Act is fully implemented should be resolved in a manner that is consistent with the express division of powers set out in ss. 91, 92, and 92A of the *Constitution*, the constitutional principle of cooperative federalism, and the further principles of subsidiarity and inter-jurisdictional immunity, which are implicit therein.

PART IV: ORDER SOUGHT

42. IETA respectfully requests an Order from this Honourable Court:

(a) affirming the constitutional validity of the Act as validly enacted under Parliament's power over general trade and commerce, supported by its treaty making powers and the criminal law power;

(b) confirming that if the effect of the Act, when it is fully implemented, is to render a validly enacted provincial carbon pricing regime of greater GHG reducing stringency inapplicable, inoperable, or the Act encroaches upon the core elements of an area of exclusive provincial jurisdiction (in particular exclusive provincial jurisdiction over electricity facilities under s. 92A(1)(c) of the *Constitution*), it should be interpreted in a manner that reflects the express balance of powers in the *Constitution*, and the principle of cooperative federalism; and

(c) such further or other Order as IETA shall request and this Honourable Court deem appropriate.

ALL OF WHICH IS RESPECTFULLY SUBMITTED, this 27th day of February, 2019.

DEMARCO ALLAN LLP
Per:

Lisa (Elisabeth) DeMarco
Counsel for IETA

Jonathan McGillivray
Counsel for IETA

PART V: TABLE OF AUTHORITIES

LEGISLATION

Constitution (as per Factum of the Attorney General of Ontario)

Greenhouse Gas Pollution Pricing Act, SC 2018, c. 12 *(as per Factum of the Attorney General of Ontario)*

The Management and Reduction of Greenhouse Gases Act, SS, c. M-2.01 [**Saskatchewan Book of Authorities, Tab 29**]

Carbon Tax Act, SBC, c. 40 [**IETA BOA, Tab 1**]

Climate Change Act, SNB 2018, c. 11 [**IETA BOA, Tab 2**]

Gasoline and Motive Fuel Tax Act, RSNB 1973, c. G-3 [**IETA BOA, Tab 3**]

SOR/2018-213, *Notice Establishing Criteria Respecting Facilities and Persons and Publishing Measures* [**IETA BOA, Tab 4**]

JURISPRUDENCE

Canada (AG) v Ontario (AG), [1937] AC 326 (PC), [1937] 1 DLR 673 [*Labour Conventions*] [**JBOA, Vol. I, Tab 10**]

General Motors of Canada Ltd. v City National Leasing, [1989] 1 SCR 641 [**JBOA, Vol. II, Tab 23**]

R v Crown Zellerbach Canada Ltd., [1988] 1 SCR 401 [**JBOA, Vol. III, Tab 40**]

R v Hydro-Québec, [1997] 3 SCR 213 [**JBOA, Vol. III, Tab 41**]

Reference re Securities Act, 2011 SCC 66 [*Securities Reference*] [**JBOA, Vol. IV, Tab 50**]

SECONDARY MATERIAL: GOVERNMENT DOCUMENTS

Ontario, *Preserving and Protecting our Environment for Future Generations: A Made-in-Ontario Environment Plan* (29 November 2018) [**Record of the Attorney General of Ontario, Vol. 1, Tab 4**]

Government of Ontario, *Making Polluters Accountable: Industrial Emission Performance Standards* (Regulatory Proposal), February 2019 [**IETA BOA, Tab 5**]

Paris Agreement, 12 December 2015, CP Dec 1/CP.21, FCCC/CP/2015/10/Add.1 (entered into force 4 November 2016) [**BC Book of Authorities, Tab 38**]

Court of Appeal File No.: C65807

COURT OF APPEAL FOR ONTARIO

IN THE MATTER OF A REFERENCE to the Court of Appeal pursuant to section 8 of the *Courts of Justice Act*, RSO 1990, c. C.34, by Order-in-Council 1014/2018 respecting the constitutionality of the *Greenhouse Gas Pollution Pricing Act*, Part 5 of the *Budget Implementation Act, 2018, No. 1*, SC 2018, c. 12

AFFIDAVIT OF KATHLEEN ELEANOR SULLIVAN

I, **KATHLEEN ELEANOR SULLIVAN**, of the City of Toronto, in the Province of Ontario, in my capacity as the Managing Director of International Emissions Trading Association ("**IETA**") MAKE OATH AND SAY:

PART I: INTRODUCTION

1. I am currently the Managing Director of IETA. This Affidavit is sworn in support of IETA's motion for leave to intervene in the Reference to the Court of Appeal pursuant to section 8 of the *Courts of Justice Act*, RSO 1990, c. C.34, by Order-in-Council 1014/2018 respecting the constitutionality of the *Greenhouse Gas Pollution Pricing Act*, Part 5 of the *Budget Implementation Act, 2018, No. 1*, SC 2018, c. 12, herein referred to as the "**Reference**". I make this Affidavit for the purpose of supporting IETA's motion to intervention in the Reference and for no other or improper purpose.
2. Except as otherwise indicated, I have personal knowledge of the matters to which I depose in this Affidavit. Where I lack such personal knowledge, I have indicated the source of my information and I verily believe such information to be true.
3. I began working with IETA in January, 2010 and have held positions of Managing Director, North America & Climate Finance Director, North America Director, and Canadian Director since that date. In those positions, I have worked with policy makers and business interests around the world in order to develop, negotiate, and implement carbon trading pricing regimes that are operating to successfully result in efficient, low cost greenhouse gas ("**GHG**") reductions.

KS

4. IETA is a long-standing, non-profit organization, taking the form of a Swiss verein, and registered non-share capital corporation(s) in several of the jurisdictions where it is active, including Canada. IETA has over one hundred and fifty (150) Canadian and international business and industry members that are committed to facilitating progressive, low cost, market-based approaches to assist in addressing climate change.
5. IETA has been a leading Canadian and international business voice on carbon pricing and climate finance, including the design and implementation of flexible, compliance emissions trading and offset systems for nearly two decades. IETA was not created, nor does it exist, for the sole purpose of advancing a position in the Reference. IETA is a leading business and industry non-governmental organization (BINGO) active in the United Nations Framework Convention on Climate Change ("**UNFCCC**") and the Paris Agreement established under the UNFCCC.
6. IETA has been very active on legal and policy challenges related to various carbon pricing/trading regimes in a number of jurisdictions. Recently, IETA was granted *amicus curiae* status and was active in assisting the Court of Appeal of the State of California (Third Appellate District) in the recent challenges related to California's carbon pricing system and the legal validity of its auctions as a tax or a regulatory charge in *California Chamber of Commerce v. State Air Resources Board*, decided April 6, 2017 (decision attached as Exhibit "A" to this Affidavit). I therefore believe that IETA will be of assistance to the Court and can make a useful contribution to the argument of the issues before the Court in this Reference.
7. Many jurisdictions (including, without limitation, Canada and the Provinces, the United States and respective states, the European Union, the United Kingdom, China, Brazil, Chile, Colombia, Mexico, South Korea, Morocco, and South Africa) have called upon IETA's specialized and extensive carbon market and technical expertise to inform and facilitate policies, regulations, and legislation that delivers meaningful GHG reductions, minimize carbon leakage, address economic competitiveness concerns, and balance economic efficiencies with social equity and co-benefits. As such, IETA is a well-recognized group and has specialized expertise on the matters and issues giving rise to, and now before, the Court in the Reference.

8. IETA's support for market-based approaches to achieve efficient, low cost GHG reductions is underpinned by environmental integrity and cooperation among jurisdictions. This approach facilitates business and policy certainty by incenting long term, harmonized, least-cost solutions to addressing the pressing issue of climate change. In jurisdictions like the European Union, effective carbon trading regimes have been best achieved through coordination and cooperation among the broader regional economic integration organization and its member states, each of which have relevant jurisdiction in a manner similar to Canada and the Provinces.
9. Many IETA members also have decades of experience and expertise in working with other jurisdictions navigating the development, implementation of, and challenges to, carbon pricing and related emission markets. Many IETA members are directly regulated under provincial and/or the proposed federal carbon regulatory regimes. They are also both directly affected by the issues and outcome of this Reference and potentially adversely affected by unstable, uncertain, and inconsistent carbon regimes.
10. IETA's members are directly engaged in developing and implementing long, medium, and short term business strategies and plans to address, adapt, and respond to a changing climate and the necessity of sustainable policy in furtherance of such goals. IETA's members view climate change as a significant business issue, which presents both risks and opportunities that are best addressed through a stable and meaningful policy framework. IETA members are generally supportive of carbon pricing regimes that include carbon markets and certain, stable market rules to facilitate the related capital and infrastructure investments.
11. The October, 2018 Intergovernmental Panel on Climate Change ("**IPCC**") Special Report *Global Warming of 1.5ºC*, Summary for Policy Makers (the "**IPCC Report**") (attached as Exhibit "B" to this Affidavit) indicates that the risks of climate change are significant and increasing, and require prompt action to avoid the serious consequences of a 2ºC rise in average global temperatures. Many IETA members are diligently analyzing and responding to the key findings of the IPCC Report.
12. The key findings of the IPCC Report include, *inter alia,* the following:
    (a) Human activities are estimated to have caused approximately 1.0ºC of global warming above pre-industrial levels, with a likely range of 0.8ºC to 1.2ºC. Global

warming is likely to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate.

(b) Climate-related risks for natural and human systems are higher for global warming of 1.5°C than at present, but lower than at 2°C.

(c) Climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth are projected to increase with global warming of 1.5°C and increase further with 2°C.

(d) Pathways limiting global warming to 1.5°C with no or limited overshoot require rapid and far-reaching transitions. These transitions are unprecedented in terms of scale, but not necessarily in terms of speed, and require investment and deep emissions reductions in all sectors.

13. I have reviewed the climate-related legislative actions of the federal government and the Environment Plan of the government of Ontario. Each jurisdiction highlights the seriousness and importance of responding and adapting to climate change. Similarly, each jurisdiction appears to include carbon pricing (taking the form of mandatory emission performance standards and financial penalties if exceeded) as part of their approach. Many IETA members will be directly regulated under either or both of these regimes and are thereby directly affected by the issues and the outcome of the Reference.

14. IETA supports prompt and meaningful government and business action to address and respond to climate change in a manner that may include carbon pricing. IETA is of the view that robust, least-cost approaches to carbon pricing, which are both environmentally and politically sustainable and consistent with the Constitution of Canada, should form the backbone of climate action in Canada and the Provinces. Such an approach is integral to long term business certainty and an efficient and effective approach to the many climate-related risks and opportunities that Canadian and international business organizations must now address.

15. The issues in this case have broad public policy implications with direct impact on IETA members.

16. IETA does not intend to seek its costs of participating in this motion or the Reference if leave to intervene is granted. It will also ask that it not have costs awarded against it in the event that either: (i) leave to intervene is not granted; or (ii) leave to intervene is granted.

SWORN before me at the City of Toronto in the Province of Ontario, this 20th day of December, 2018.

Commissioner for Taking Affidavits

Name: Jonathan McGillivray
LSO No.: 71613F

KATHLEEN ELEANOR SULLIVAN

This Exhibit "A" referred to in the affidavit of
Kathleen Eleanor Sullivan
affirmed before me on **December 20, 2018**

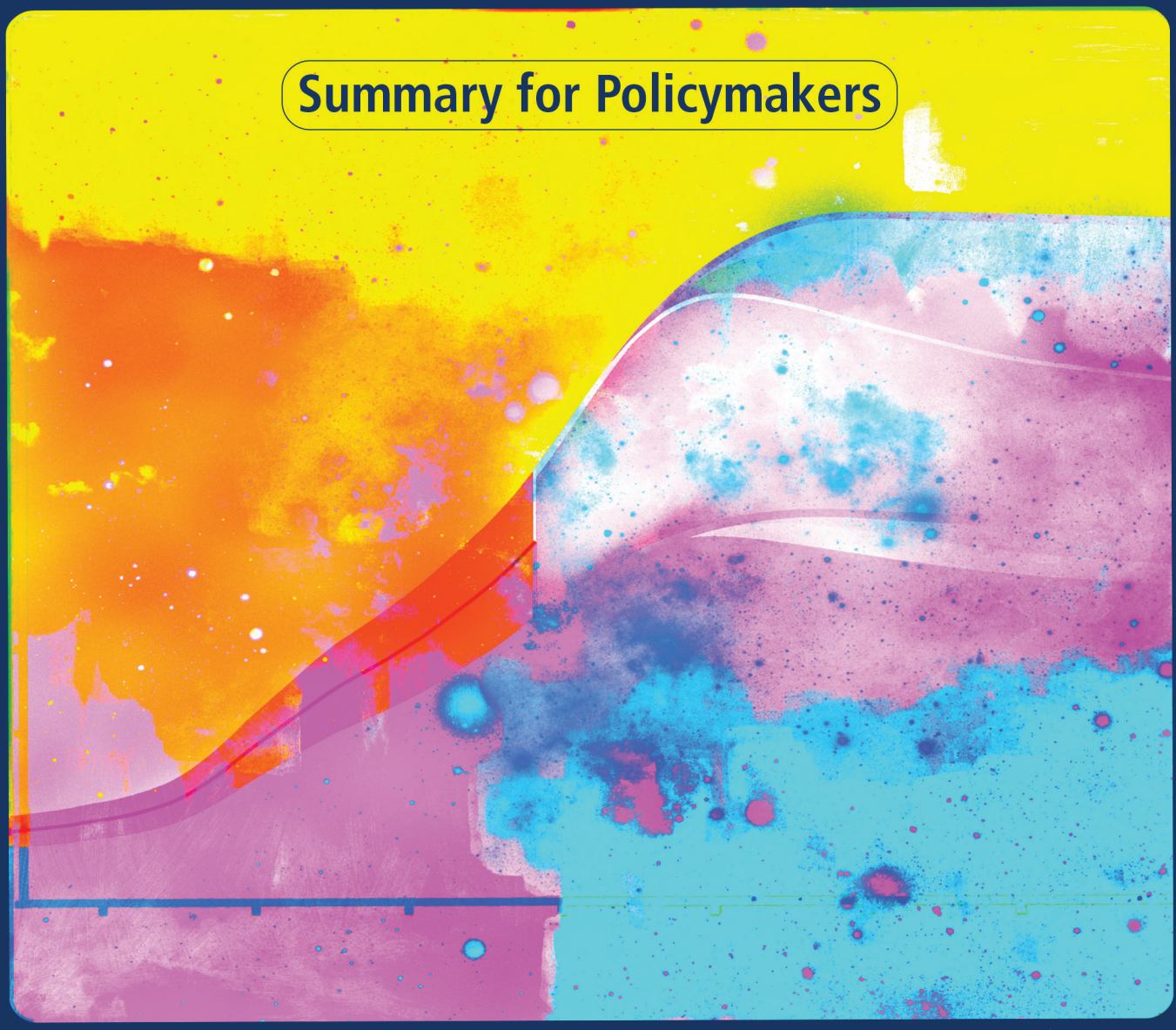
Commissioner for Taking Affidavits

ipcc

INTERGOVERNMENTAL PANEL ON climate change

Global Warming of 1.5°C

An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty



WG I WG II WG III

WMO UNEP

Global warming of 1.5°C

An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty

Summary for Policymakers

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Summary for Policymakers

SPM

Summary for Policymakers

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Introduction

This Report responds to the invitation for IPCC '... to provide a Special Report in 2018 on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways' contained in the Decision of the 21st Conference of Parties of the United Nations Framework Convention on Climate Change to adopt the Paris Agreement.[1]

The IPCC accepted the invitation in April 2016, deciding to prepare this Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty.

This Summary for Policymakers (SPM) presents the key findings of the Special Report, based on the assessment of the available scientific, technical and socio-economic literature[2] relevant to global warming of 1.5°C and for the comparison between global warming of 1.5°C and 2°C above pre-industrial levels. The level of confidence associated with each key finding is reported using the IPCC calibrated language.[3] The underlying scientific basis of each key finding is indicated by references provided to chapter elements. In the SPM, knowledge gaps are identified associated with the underlying chapters of the Report.

A. Understanding Global Warming of 1.5°C[4]

A.1 Human activities are estimated to have caused approximately 1.0°C of global warming[5] above pre-industrial levels, with a *likely* range of 0.8°C to 1.2°C. Global warming is *likely* to reach 1.5°C between 2030 and 2052 if it continues to increase at the current rate. (*high confidence*) (Figure SPM.1) {1.2}

A.1.1 Reflecting the long-term warming trend since pre-industrial times, observed global mean surface temperature (GMST) for the decade 2006–2015 was 0.87°C (*likely* between 0.75°C and 0.99°C)[6] higher than the average over the 1850–1900 period (*very high confidence*). Estimated anthropogenic global warming matches the level of observed warming to within ±20% (*likely range*). Estimated anthropogenic global warming is currently increasing at 0.2°C (*likely* between 0.1°C and 0.3°C) per decade due to past and ongoing emissions (*high confidence*). {1.2.1, Table 1.1, 1.2.4}

A.1.2 Warming greater than the global annual average is being experienced in many land regions and seasons, including two to three times higher in the Arctic. Warming is generally higher over land than over the ocean. (*high confidence*) {1.2.1, 1.2.2, Figure 1.1, Figure 1.3, 3.3.1, 3.3.2}

A.1.3 Trends in intensity and frequency of some climate and weather extremes have been detected over time spans during which about 0.5°C of global warming occurred (*medium confidence*). This assessment is based on several lines of evidence, including attribution studies for changes in extremes since 1950. {3.3.1, 3.3.2, 3.3.3}

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1 Decision 1/CP.21, paragraph 21.

2 The assessment covers literature accepted for publication by 15 May 2018.

3 Each finding is grounded in an evaluation of underlying evidence and agreement. A level of confidence is expressed using five qualifiers: very low, low, medium, high and very high, and typeset in italics, for example, *medium confidence*. The following terms have been used to indicate the assessed likelihood of an outcome or a result: virtually certain 99–100% probability, very likely 90–100%, likely 66–100%, about as likely as not 33–66%, unlikely 0–33%, very unlikely 0–10%, exceptionally unlikely 0–1%. Additional terms (extremely likely 95–100%, more likely than not >50–100%, more unlikely than likely 0–<50%, extremely unlikely 0–5%) may also be used when appropriate. Assessed likelihood is typeset in italics, for example, *very likely*. This is consistent with AR5.

4 See also Box SPM.1: Core Concepts Central to this Special Report.

5 Present level of global warming is defined as the average of a 30-year period centred on 2017 assuming the recent rate of warming continues.

6 This range spans the four available peer-reviewed estimates of the observed GMST change and also accounts for additional uncertainty due to possible short-term natural variability. {1.2.1, Table 1.1}

A.2 Warming from anthropogenic emissions from the pre-industrial period to the present will persist for centuries to millennia and will continue to cause further long-term changes in the climate system, such as sea level rise, with associated impacts (*high confidence*), but these emissions alone are *unlikely* to cause global warming of 1.5°C (*medium confidence*). (Figure SPM.1) {1.2, 3.3, Figure 1.5}

A.2.1 Anthropogenic emissions (including greenhouse gases, aerosols and their precursors) up to the present are *unlikely* to cause further warming of more than 0.5°C over the next two to three decades (*high confidence*) or on a century time scale (*medium confidence*). {1.2.4, Figure 1.5}

A.2.2 Reaching and sustaining net zero global anthropogenic CO_2 emissions and declining net non-CO_2 radiative forcing would halt anthropogenic global warming on multi-decadal time scales (*high confidence*). The maximum temperature reached is then determined by cumulative net global anthropogenic CO_2 emissions up to the time of net zero CO_2 emissions (*high confidence*) and the level of non-CO_2 radiative forcing in the decades prior to the time that maximum temperatures are reached (*medium confidence*). On longer time scales, sustained net negative global anthropogenic CO_2 emissions and/or further reductions in non-CO_2 radiative forcing may still be required to prevent further warming due to Earth system feedbacks and to reverse ocean acidification (*medium confidence*) and will be required to minimize sea level rise (*high confidence*). {Cross-Chapter Box 2 in Chapter 1, 1.2.3, 1.2.4, Figure 1.4, 2.2.1, 2.2.2, 3.4.4.8, 3.4.5.1, 3.6.3.2}

A.3 Climate-related risks for natural and human systems are higher for global warming of 1.5°C than at present, but lower than at 2°C (*high confidence*). These risks depend on the magnitude and rate of warming, geographic location, levels of development and vulnerability, and on the choices and implementation of adaptation and mitigation options (*high confidence*). (Figure SPM.2) {1.3, 3.3, 3.4, 5.6}

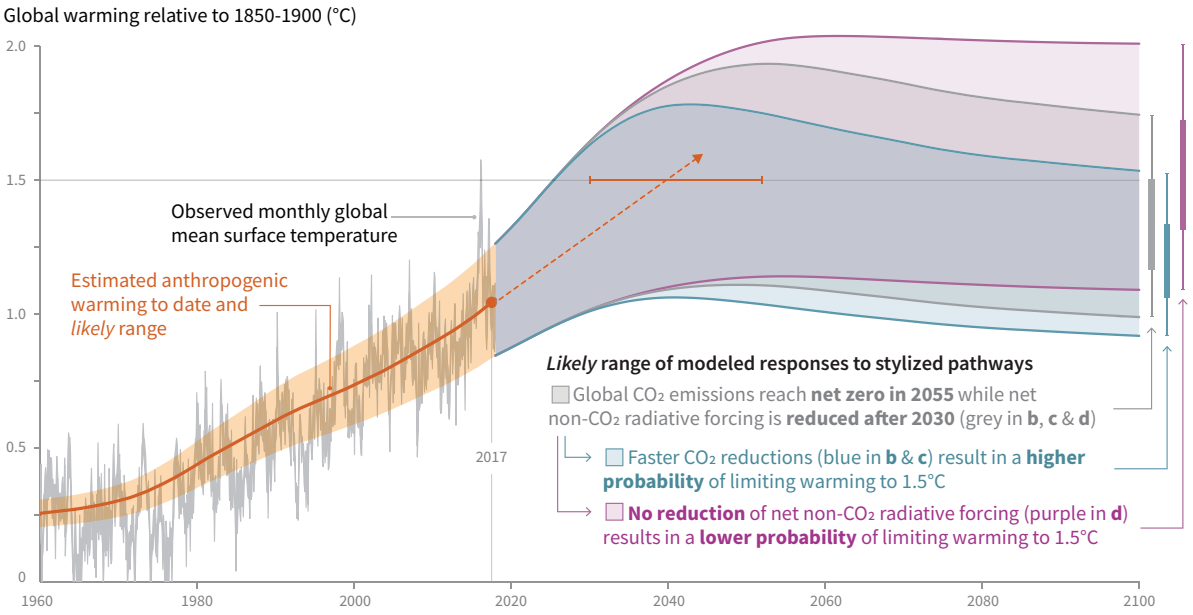
A.3.1 Impacts on natural and human systems from global warming have already been observed (*high confidence*). Many land and ocean ecosystems and some of the services they provide have already changed due to global warming (*high confidence*). (Figure SPM.2) {1.4, 3.4, 3.5}

A.3.2 Future climate-related risks depend on the rate, peak and duration of warming. In the aggregate, they are larger if global warming exceeds 1.5°C before returning to that level by 2100 than if global warming gradually stabilizes at 1.5°C, especially if the peak temperature is high (e.g., about 2°C) (*high confidence*). Some impacts may be long-lasting or irreversible, such as the loss of some ecosystems (*high confidence*). {3.2, 3.4.4, 3.6.3, Cross-Chapter Box 8 in Chapter 3}

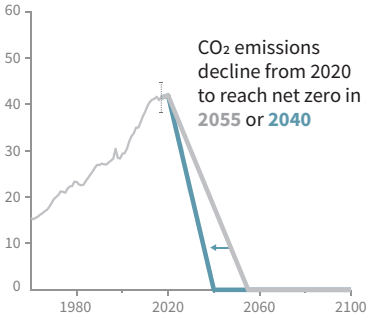
A.3.3 Adaptation and mitigation are already occurring (*high confidence*). Future climate-related risks would be reduced by the upscaling and acceleration of far-reaching, multilevel and cross-sectoral climate mitigation and by both incremental and transformational adaptation (*high confidence*). {1.2, 1.3, Table 3.5, 4.2.2, Cross-Chapter Box 9 in Chapter 4, Box 4.2, Box 4.3, Box 4.6, 4.3.1, 4.3.2, 4.3.3, 4.3.4, 4.3.5, 4.4.1, 4.4.4, 4.4.5, 4.5.3}

Cumulative emissions of CO_2 and future non-CO_2 radiative forcing determine the probability of limiting warming to 1.5°C

a) Observed global temperature change and modeled responses to stylized anthropogenic emission and forcing pathways

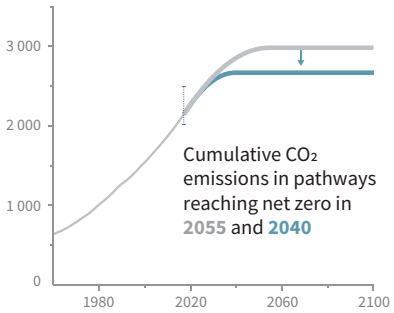


b) Stylized net global CO_2 emission pathways
Billion tonnes CO_2 per year ($GtCO_2$/yr)

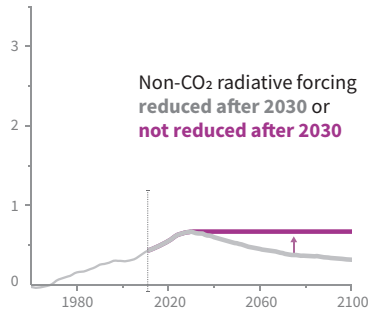


Faster immediate CO_2 emission reductions limit cumulative CO_2 emissions shown in panel **(c)**.

c) Cumulative net CO_2 emissions
Billion tonnes CO_2 ($GtCO_2$)



d) Non-CO_2 radiative forcing pathways
Watts per square metre (W/m^2)



Maximum temperature rise is determined by cumulative net CO_2 emissions and net non-CO_2 radiative forcing due to methane, nitrous oxide, aerosols and other anthropogenic forcing agents.

Figure SPM.1 | Panel a: Observed monthly global mean surface temperature (GMST, grey line up to 2017, from the HadCRUT4, GISTEMP, Cowtan–Way, and NOAA datasets) change and estimated anthropogenic global warming (solid orange line up to 2017, with orange shading indicating assessed *likely* range). Orange dashed arrow and horizontal orange error bar show respectively the central estimate and *likely* range of the time at which 1.5°C is reached if the current rate of warming continues. The grey plume on the right of panel a shows the *likely* range of warming responses, computed with a simple climate model, to a stylized pathway (hypothetical future) in which net CO_2 emissions (grey line in panels b and c) decline in a straight line from 2020 to reach net zero in 2055 and net non-CO_2 radiative forcing (grey line in panel d) increases to 2030 and then declines. The blue plume in panel a) shows the response to faster CO_2 emissions reductions (blue line in panel b), reaching net zero in 2040, reducing cumulative CO_2 emissions (panel c). The purple plume shows the response to net CO_2 emissions declining to zero in 2055, with net non-CO_2 forcing remaining constant after 2030. The vertical error bars on right of panel a) show the *likely* ranges (thin lines) and central terciles (33rd – 66th percentiles, thick lines) of the estimated distribution of warming in 2100 under these three stylized pathways. Vertical dotted error bars in panels b, c and d show the *likely* range of historical annual and cumulative global net CO_2 emissions in 2017 (data from the Global Carbon Project) and of net non-CO_2 radiative forcing in 2011 from AR5, respectively. Vertical axes in panels c and d are scaled to represent approximately equal effects on GMST. {1.2.1, 1.2.3, 1.2.4, 2.3, Figure 1.2 and Chapter 1 Supplementary Material, Cross-Chapter Box 2 in Chapter 1}

B. Projected Climate Change, Potential Impacts and Associated Risks

B.1 Climate models project robust[7] differences in regional climate characteristics between present-day and global warming of 1.5°C,[8] and between 1.5°C and 2°C.[8] These differences include increases in: mean temperature in most land and ocean regions (*high confidence*), hot extremes in most inhabited regions (*high confidence*), heavy precipitation in several regions (*medium confidence*), and the probability of drought and precipitation deficits in some regions (*medium confidence*). {3.3}

B.1.1 Evidence from attributed changes in some climate and weather extremes for a global warming of about 0.5°C supports the assessment that an additional 0.5°C of warming compared to present is associated with further detectable changes in these extremes (*medium confidence*). Several regional changes in climate are assessed to occur with global warming up to 1.5°C compared to pre-industrial levels, including warming of extreme temperatures in many regions (*high confidence*), increases in frequency, intensity, and/or amount of heavy precipitation in several regions (*high confidence*), and an increase in intensity or frequency of droughts in some regions (*medium confidence*). {3.2, 3.3.1, 3.3.2, 3.3.3, 3.3.4, Table 3.2}

B.1.2 Temperature extremes on land are projected to warm more than GMST (*high confidence*): extreme hot days in mid-latitudes warm by up to about 3°C at global warming of 1.5°C and about 4°C at 2°C, and extreme cold nights in high latitudes warm by up to about 4.5°C at 1.5°C and about 6°C at 2°C (*high confidence*). The number of hot days is projected to increase in most land regions, with highest increases in the tropics (*high confidence*). {3.3.1, 3.3.2, Cross-Chapter Box 8 in Chapter 3}

B.1.3 Risks from droughts and precipitation deficits are projected to be higher at 2°C compared to 1.5°C of global warming in some regions (*medium confidence*). Risks from heavy precipitation events are projected to be higher at 2°C compared to 1.5°C of global warming in several northern hemisphere high-latitude and/or high-elevation regions, eastern Asia and eastern North America (*medium confidence)*. Heavy precipitation associated with tropical cyclones is projected to be higher at 2°C compared to 1.5°C global warming (*medium confidence*). There is generally *low confidence* in projected changes in heavy precipitation at 2°C compared to 1.5°C in other regions. Heavy precipitation when aggregated at global scale is projected to be higher at 2°C than at 1.5°C of global warming (*medium confidence*). As a consequence of heavy precipitation, the fraction of the global land area affected by flood hazards is projected to be larger at 2°C compared to 1.5°C of global warming (*medium confidence*). {3.3.1, 3.3.3, 3.3.4, 3.3.5, 3.3.6}

B.2 By 2100, global mean sea level rise is projected to be around 0.1 metre lower with global warming of 1.5°C compared to 2°C (*medium confidence*). Sea level will continue to rise well beyond 2100 (*high confidence*), and the magnitude and rate of this rise depend on future emission pathways. A slower rate of sea level rise enables greater opportunities for adaptation in the human and ecological systems of small islands, low-lying coastal areas and deltas (*medium confidence*). {3.3, 3.4, 3.6}

B.2.1 Model-based projections of global mean sea level rise (relative to 1986–2005) suggest an indicative range of 0.26 to 0.77 m by 2100 for 1.5°C of global warming, 0.1 m (0.04–0.16 m) less than for a global warming of 2°C (*medium confidence*). A reduction of 0.1 m in global sea level rise implies that up to 10 million fewer people would be exposed to related risks, based on population in the year 2010 and assuming no adaptation (*medium confidence*). {3.4.4, 3.4.5, 4.3.2}

B.2.2 Sea level rise will continue beyond 2100 even if global warming is limited to 1.5°C in the 21st century (*high confidence*). Marine ice sheet instability in Antarctica and/or irreversible loss of the Greenland ice sheet could result in multi-metre rise in sea level over hundreds to thousands of years. These instabilities could be triggered at around 1.5°C to 2°C of global warming (*medium confidence*). (Figure SPM.2) {3.3.9, 3.4.5, 3.5.2, 3.6.3, Box 3.3}

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7 Robust is here used to mean that at least two thirds of climate models show the same sign of changes at the grid point scale, and that differences in large regions are statistically significant.

8 Projected changes in impacts between different levels of global warming are determined with respect to changes in global mean surface air temperature.

B.2.3 Increasing warming amplifies the exposure of small islands, low-lying coastal areas and deltas to the risks associated with sea level rise for many human and ecological systems, including increased saltwater intrusion, flooding and damage to infrastructure (*high confidence*). Risks associated with sea level rise are higher at 2°C compared to 1.5°C. The slower rate of sea level rise at global warming of 1.5°C reduces these risks, enabling greater opportunities for adaptation including managing and restoring natural coastal ecosystems and infrastructure reinforcement (*medium confidence*). (Figure SPM.2) {3.4.5, Box 3.5}

B.3 On land, impacts on biodiversity and ecosystems, including species loss and extinction, are projected to be lower at 1.5°C of global warming compared to 2°C. Limiting global warming to 1.5°C compared to 2°C is projected to lower the impacts on terrestrial, freshwater and coastal ecosystems and to retain more of their services to humans (*high confidence*). (Figure SPM.2) {3.4, 3.5, Box 3.4, Box 4.2, Cross-Chapter Box 8 in Chapter 3}

B.3.1 Of 105,000 species studied,[9] 6% of insects, 8% of plants and 4% of vertebrates are projected to lose over half of their climatically determined geographic range for global warming of 1.5°C, compared with 18% of insects, 16% of plants and 8% of vertebrates for global warming of 2°C (*medium confidence*). Impacts associated with other biodiversity-related risks such as forest fires and the spread of invasive species are lower at 1.5°C compared to 2°C of global warming (*high confidence*). {3.4.3, 3.5.2}

B.3.2 Approximately 4% (interquartile range 2–7%) of the global terrestrial land area is projected to undergo a transformation of ecosystems from one type to another at 1°C of global warming, compared with 13% (interquartile range 8–20%) at 2°C (*medium confidence*). This indicates that the area at risk is projected to be approximately 50% lower at 1.5°C compared to 2°C (*medium confidence*). {3.4.3.1, 3.4.3.5}

B.3.3 High-latitude tundra and boreal forests are particularly at risk of climate change-induced degradation and loss, with woody shrubs already encroaching into the tundra (*high confidence*) and this will proceed with further warming. Limiting global warming to 1.5°C rather than 2°C is projected to prevent the thawing over centuries of a permafrost area in the range of 1.5 to 2.5 million km^2 (*medium confidence*). {3.3.2, 3.4.3, 3.5.5}

B.4 Limiting global warming to 1.5°C compared to 2°C is projected to reduce increases in ocean temperature as well as associated increases in ocean acidity and decreases in ocean oxygen levels (*high confidence*). Consequently, limiting global warming to 1.5°C is projected to reduce risks to marine biodiversity, fisheries, and ecosystems, and their functions and services to humans, as illustrated by recent changes to Arctic sea ice and warm-water coral reef ecosystems (*high confidence*). {3.3, 3.4, 3.5, Box 3.4, Box 3.5}

B.4.1 There is *high confidence* that the probability of a sea ice-free Arctic Ocean during summer is substantially lower at global warming of 1.5°C when compared to 2°C. With 1.5°C of global warming, one sea ice-free Arctic summer is projected per century. This likelihood is increased to at least one per decade with 2°C global warming. Effects of a temperature overshoot are reversible for Arctic sea ice cover on decadal time scales (*high confidence*). {3.3.8, 3.4.4.7}

B.4.2 Global warming of 1.5°C is projected to shift the ranges of many marine species to higher latitudes as well as increase the amount of damage to many ecosystems. It is also expected to drive the loss of coastal resources and reduce the productivity of fisheries and aquaculture (especially at low latitudes). The risks of climate-induced impacts are projected to be higher at 2°C than those at global warming of 1.5°C (*high confidence*). Coral reefs, for example, are projected to decline by a further 70–90% at 1.5°C (*high confidence*) with larger losses (>99%) at 2°C (*very high confidence*). The risk of irreversible loss of many marine and coastal ecosystems increases with global warming, especially at 2°C or more (*high confidence*). {3.4.4, Box 3.4}

9 Consistent with earlier studies, illustrative numbers were adopted from one recent meta-study.

B.4.3 The level of ocean acidification due to increasing CO_2 concentrations associated with global warming of 1.5°C is projected to amplify the adverse effects of warming, and even further at 2°C, impacting the growth, development, calcification, survival, and thus abundance of a broad range of species, for example, from algae to fish (*high confidence*). {3.3.10, 3.4.4}

B.4.4 Impacts of climate change in the ocean are increasing risks to fisheries and aquaculture via impacts on the physiology, survivorship, habitat, reproduction, disease incidence, and risk of invasive species (*medium confidence*) but are projected to be less at 1.5°C of global warming than at 2°C. One global fishery model, for example, projected a decrease in global annual catch for marine fisheries of about 1.5 million tonnes for 1.5°C of global warming compared to a loss of more than 3 million tonnes for 2°C of global warming (*medium confidence*). {3.4.4, Box 3.4}

B.5 Climate-related risks to health, livelihoods, food security, water supply, human security, and economic growth are projected to increase with global warming of 1.5°C and increase further with 2°C. (Figure SPM.2) {3.4, 3.5, 5.2, Box 3.2, Box 3.3, Box 3.5, Box 3.6, Cross-Chapter Box 6 in Chapter 3, Cross-Chapter Box 9 in Chapter 4, Cross-Chapter Box 12 in Chapter 5, 5.2}

B.5.1 Populations at disproportionately higher risk of adverse consequences with global warming of 1.5°C and beyond include disadvantaged and vulnerable populations, some indigenous peoples, and local communities dependent on agricultural or coastal livelihoods (*high confidence*). Regions at disproportionately higher risk include Arctic ecosystems, dryland regions, small island developing states, and Least Developed Countries (*high confidence*). Poverty and disadvantage are expected to increase in some populations as global warming increases; limiting global warming to 1.5°C, compared with 2°C, could reduce the number of people both exposed to climate-related risks and susceptible to poverty by up to several hundred million by 2050 (*medium confidence*). {3.4.10, 3.4.11, Box 3.5, Cross-Chapter Box 6 in Chapter 3, Cross-Chapter Box 9 in Chapter 4, Cross-Chapter Box 12 in Chapter 5, 4.2.2.2, 5.2.1, 5.2.2, 5.2.3, 5.6.3}

B.5.2 Any increase in global warming is projected to affect human health, with primarily negative consequences (*high confidence*). Lower risks are projected at 1.5°C than at 2°C for heat-related morbidity and mortality (*very high confidence*) and for ozone-related mortality if emissions needed for ozone formation remain high (*high confidence*). Urban heat islands often amplify the impacts of heatwaves in cities (*high confidence*). Risks from some vector-borne diseases, such as malaria and dengue fever, are projected to increase with warming from 1.5°C to 2°C, including potential shifts in their geographic range (*high confidence*). {3.4.7, 3.4.8, 3.5.5.8}

B.5.3 Limiting warming to 1.5°C compared with 2°C is projected to result in smaller net reductions in yields of maize, rice, wheat, and potentially other cereal crops, particularly in sub-Saharan Africa, Southeast Asia, and Central and South America, and in the CO_2-dependent nutritional quality of rice and wheat (*high confidence*). Reductions in projected food availability are larger at 2°C than at 1.5°C of global warming in the Sahel, southern Africa, the Mediterranean, central Europe, and the Amazon (*medium confidence*). Livestock are projected to be adversely affected with rising temperatures, depending on the extent of changes in feed quality, spread of diseases, and water resource availability (*high confidence*). {3.4.6, 3.5.4, 3.5.5, Box 3.1, Cross-Chapter Box 6 in Chapter 3, Cross-Chapter Box 9 in Chapter 4}

B.5.4 Depending on future socio-economic conditions, limiting global warming to 1.5°C compared to 2°C may reduce the proportion of the world population exposed to a climate change-induced increase in water stress by up to 50%, although there is considerable variability between regions (*medium confidence*). Many small island developing states could experience lower water stress as a result of projected changes in aridity when global warming is limited to 1.5°C, as compared to 2°C (*medium confidence*). {3.3.5, 3.4.2, 3.4.8, 3.5.5, Box 3.2, Box 3.5, Cross-Chapter Box 9 in Chapter 4}

B.5.5 Risks to global aggregated economic growth due to climate change impacts are projected to be lower at 1.5°C than at 2°C by the end of this century[10] (*medium confidence*). This excludes the costs of mitigation, adaptation investments and the benefits of adaptation. Countries in the tropics and Southern Hemisphere subtropics are projected to experience the largest impacts on economic growth due to climate change should global warming increase from 1.5°C to 2°C (*medium confidence*). {3.5.2, 3.5.3}

10 Here, impacts on economic growth refer to changes in gross domestic product (GDP). Many impacts, such as loss of human lives, cultural heritage and ecosystem services, are difficult to value and monetize.

B.5.6 Exposure to multiple and compound climate-related risks increases between 1.5°C and 2°C of global warming, with greater proportions of people both so exposed and susceptible to poverty in Africa and Asia (*high confidence*). For global warming from 1.5°C to 2°C, risks across energy, food, and water sectors could overlap spatially and temporally, creating new and exacerbating current hazards, exposures, and vulnerabilities that could affect increasing numbers of people and regions (*medium confidence*). {Box 3.5, 3.3.1, 3.4.5.3, 3.4.5.6, 3.4.11, 3.5.4.9}

B.5.7 There are multiple lines of evidence that since AR5 the assessed levels of risk increased for four of the five Reasons for Concern (RFCs) for global warming to 2°C (*high confidence*). The risk transitions by degrees of global warming are now: from high to very high risk between 1.5°C and 2°C for RFC1 (Unique and threatened systems) (*high confidence*); from moderate to high risk between 1°C and 1.5°C for RFC2 (Extreme weather events) (*medium confidence*); from moderate to high risk between 1.5°C and 2°C for RFC3 (Distribution of impacts) (*high confidence*); from moderate to high risk between 1.5°C and 2.5°C for RFC4 (Global aggregate impacts) (*medium confidence*); and from moderate to high risk between 1°C and 2.5°C for RFC5 (Large-scale singular events) (*medium confidence*). (Figure SPM.2) {3.4.13; 3.5, 3.5.2}

B.6 Most adaptation needs will be lower for global warming of 1.5°C compared to 2°C (*high confidence*). There are a wide range of adaptation options that can reduce the risks of climate change (*high confidence*). There are limits to adaptation and adaptive capacity for some human and natural systems at global warming of 1.5°C, with associated losses (*medium confidence*). The number and availability of adaptation options vary by sector (*medium confidence*). {Table 3.5, 4.3, 4.5, Cross-Chapter Box 9 in Chapter 4, Cross-Chapter Box 12 in Chapter 5}

B.6.1 A wide range of adaptation options are available to reduce the risks to natural and managed ecosystems (e.g., ecosystem-based adaptation, ecosystem restoration and avoided degradation and deforestation, biodiversity management, sustainable aquaculture, and local knowledge and indigenous knowledge), the risks of sea level rise (e.g., coastal defence and hardening), and the risks to health, livelihoods, food, water, and economic growth, especially in rural landscapes (e.g., efficient irrigation, social safety nets, disaster risk management, risk spreading and sharing, and community-based adaptation) and urban areas (e.g., green infrastructure, sustainable land use and planning, and sustainable water management) (*medium confidence*). {4.3.1, 4.3.2, 4.3.3, 4.3.5, 4.5.3, 4.5.4, 5.3.2, Box 4.2, Box 4.3, Box 4.6, Cross-Chapter Box 9 in Chapter 4}.

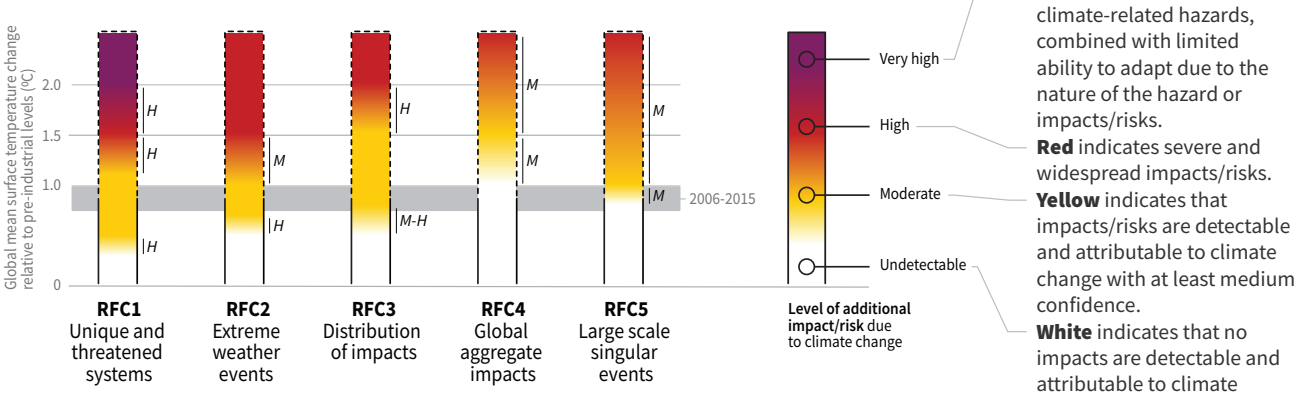
B.6.2 Adaptation is expected to be more challenging for ecosystems, food and health systems at 2°C of global warming than for 1.5°C (*medium confidence*). Some vulnerable regions, including small islands and Least Developed Countries, are projected to experience high multiple interrelated climate risks even at global warming of 1.5°C (*high confidence*). {3.3.1, 3.4.5, Box 3.5, Table 3.5, Cross-Chapter Box 9 in Chapter 4, 5.6, Cross-Chapter Box 12 in Chapter 5, Box 5.3}

B.6.3 Limits to adaptive capacity exist at 1.5°C of global warming, become more pronounced at higher levels of warming and vary by sector, with site-specific implications for vulnerable regions, ecosystems and human health (*medium confidence*). {Cross-Chapter Box 12 in Chapter 5, Box 3.5, Table 3.5}

How the level of global warming affects impacts and/or risks associated with the Reasons for Concern (RFCs) and selected natural, managed and human systems

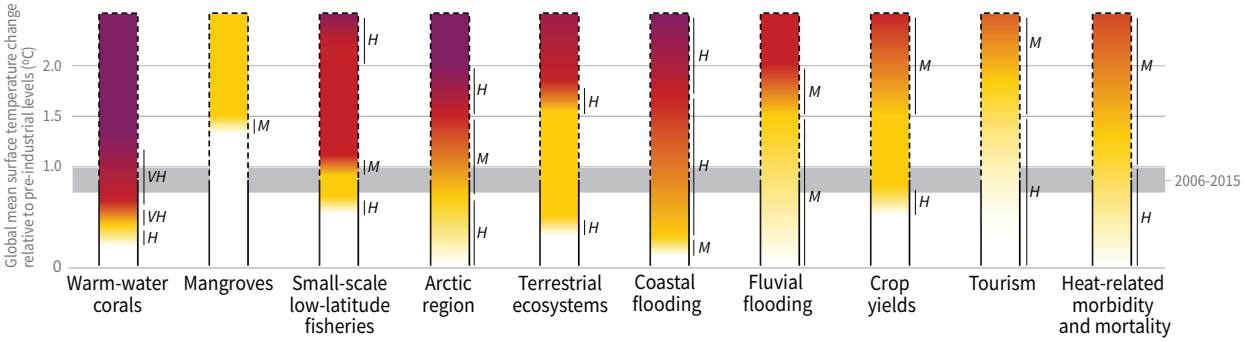
Five Reasons For Concern (RFCs) illustrate the impacts and risks of different levels of global warming for people, economies and ecosystems across sectors and regions.

Impacts and risks associated with the Reasons for Concern (RFCs)



Purple indicates very high risks of severe impacts/risks and the presence of significant irreversibility or the persistence of climate-related hazards, combined with limited ability to adapt due to the nature of the hazard or impacts/risks.
Red indicates severe and widespread impacts/risks.
Yellow indicates that impacts/risks are detectable and attributable to climate change with at least medium confidence.
White indicates that no impacts are detectable and attributable to climate change.

Impacts and risks for selected natural, managed and human systems



Confidence level for transition: *L*=Low, *M*=Medium, *H*=High and *VH*=Very high

Figure SPM.2 | Five integrative reasons for concern (RFCs) provide a framework for summarizing key impacts and risks across sectors and regions, and were introduced in the IPCC Third Assessment Report. RFCs illustrate the implications of global warming for people, economies and ecosystems. Impacts and/or risks for each RFC are based on assessment of the new literature that has appeared. As in AR5, this literature was used to make expert judgments to assess the levels of global warming at which levels of impact and/or risk are undetectable, moderate, high or very high. The selection of impacts and risks to natural, managed and human systems in the lower panel is illustrative and is not intended to be fully comprehensive. {3.4, 3.5, 3.5.2.1, 3.5.2.2, 3.5.2.3, 3.5.2.4, 3.5.2.5, 5.4.1, 5.5.3, 5.6.1, Box 3.4}

RFC1 Unique and threatened systems: ecological and human systems that have restricted geographic ranges constrained by climate-related conditions and have high endemism or other distinctive properties. Examples include coral reefs, the Arctic and its indigenous people, mountain glaciers and biodiversity hotspots.
RFC2 Extreme weather events: risks/impacts to human health, livelihoods, assets and ecosystems from extreme weather events such as heat waves, heavy rain, drought and associated wildfires, and coastal flooding.
RFC3 Distribution of impacts: risks/impacts that disproportionately affect particular groups due to uneven distribution of physical climate change hazards, exposure or vulnerability.
RFC4 Global aggregate impacts: global monetary damage, global-scale degradation and loss of ecosystems and biodiversity.
RFC5 Large-scale singular events: are relatively large, abrupt and sometimes irreversible changes in systems that are caused by global warming. Examples include disintegration of the Greenland and Antarctic ice sheets.

C. Emission Pathways and System Transitions Consistent with 1.5°C Global Warming

C.1 In model pathways with no or limited overshoot of 1.5°C, global net anthropogenic CO_2 emissions decline by about 45% from 2010 levels by 2030 (40–60% interquartile range), reaching net zero around 2050 (2045–2055 interquartile range). For limiting global warming to below 2°C[11] CO_2 emissions are projected to decline by about 25% by 2030 in most pathways (10–30% interquartile range) and reach net zero around 2070 (2065–2080 interquartile range). Non-CO_2 emissions in pathways that limit global warming to 1.5°C show deep reductions that are similar to those in pathways limiting warming to 2°C. (*high confidence*) (Figure SPM.3a) {2.1, 2.3, Table 2.4}

C.1.1 CO_2 emissions reductions that limit global warming to 1.5°C with no or limited overshoot can involve different portfolios of mitigation measures, striking different balances between lowering energy and resource intensity, rate of decarbonization, and the reliance on carbon dioxide removal. Different portfolios face different implementation challenges and potential synergies and trade-offs with sustainable development. (*high confidence*) (Figure SPM.3b) {2.3.2, 2.3.4, 2.4, 2.5.3}

C.1.2 Modelled pathways that limit global warming to 1.5°C with no or limited overshoot involve deep reductions in emissions of methane and black carbon (35% or more of both by 2050 relative to 2010). These pathways also reduce most of the cooling aerosols, which partially offsets mitigation effects for two to three decades. Non-CO_2 emissions[12] can be reduced as a result of broad mitigation measures in the energy sector. In addition, targeted non-CO_2 mitigation measures can reduce nitrous oxide and methane from agriculture, methane from the waste sector, some sources of black carbon, and hydrofluorocarbons. High bioenergy demand can increase emissions of nitrous oxide in some 1.5°C pathways, highlighting the importance of appropriate management approaches. Improved air quality resulting from projected reductions in many non-CO_2 emissions provide direct and immediate population health benefits in all 1.5°C model pathways. (*high confidence*) (Figure SPM.3a) {2.2.1, 2.3.3, 2.4.4, 2.5.3, 4.3.6, 5.4.2}

C.1.3 Limiting global warming requires limiting the total cumulative global anthropogenic emissions of CO_2 since the pre-industrial period, that is, staying within a total carbon budget (*high confidence*).[13] By the end of 2017, anthropogenic CO_2 emissions since the pre-industrial period are estimated to have reduced the total carbon budget for 1.5°C by approximately 2200 ± 320 $GtCO_2$ (*medium confidence*). The associated remaining budget is being depleted by current emissions of 42 ± 3 $GtCO_2$ per year (*high confidence*). The choice of the measure of global temperature affects the estimated remaining carbon budget. Using global mean surface air temperature, as in AR5, gives an estimate of the remaining carbon budget of 580 $GtCO_2$ for a 50% probability of limiting warming to 1.5°C, and 420 $GtCO_2$ for a 66% probability (*medium confidence*).[14] Alternatively, using GMST gives estimates of 770 and 570 $GtCO_2$, for 50% and 66% probabilities,[15] respectively (*medium confidence*). Uncertainties in the size of these estimated remaining carbon budgets are substantial and depend on several factors. Uncertainties in the climate response to CO_2 and non-CO_2 emissions contribute ±400 $GtCO_2$ and the level of historic warming contributes ±250 $GtCO_2$ (*medium confidence*). Potential additional carbon release from future permafrost thawing and methane release from wetlands would reduce budgets by up to 100 $GtCO_2$ over the course of this century and more thereafter (*medium confidence*). In addition, the level of non-CO_2 mitigation in the future could alter the remaining carbon budget by 250 $GtCO_2$ in either direction (*medium confidence*). {1.2.4, 2.2.2, 2.6.1, Table 2.2, Chapter 2 Supplementary Material}

C.1.4 Solar radiation modification (SRM) measures are not included in any of the available assessed pathways. Although some SRM measures may be theoretically effective in reducing an overshoot, they face large uncertainties and knowledge gaps

11 References to pathways limiting global warming to 2°C are based on a 66% probability of staying below 2°C.

12 Non-CO_2 emissions included in this Report are all anthropogenic emissions other than CO_2 that result in radiative forcing. These include short-lived climate forcers, such as methane, some fluorinated gases, ozone precursors, aerosols or aerosol precursors, such as black carbon and sulphur dioxide, respectively, as well as long-lived greenhouse gases, such as nitrous oxide or some fluorinated gases. The radiative forcing associated with non-CO_2 emissions and changes in surface albedo is referred to as non-CO_2 radiative forcing. {2.2.1}

13 There is a clear scientific basis for a total carbon budget consistent with limiting global warming to 1.5°C. However, neither this total carbon budget nor the fraction of this budget taken up by past emissions were assessed in this Report.

14 Irrespective of the measure of global temperature used, updated understanding and further advances in methods have led to an increase in the estimated remaining carbon budget of about 300 $GtCO_2$ compared to AR5. (*medium confidence*) {2.2.2}

15 These estimates use observed GMST to 2006–2015 and estimate future temperature changes using near surface air temperatures.

as well as substantial risks and institutional and social constraints to deployment related to governance, ethics, and impacts on sustainable development. They also do not mitigate ocean acidification. (*medium confidence*) {4.3.8, Cross-Chapter Box 10 in Chapter 4}

Global emissions pathway characteristics

General characteristics of the evolution of anthropogenic net emissions of CO_2, and total emissions of methane, black carbon, and nitrous oxide in model pathways that limit global warming to 1.5°C with no or limited overshoot. Net emissions are defined as anthropogenic emissions reduced by anthropogenic removals. Reductions in net emissions can be achieved through different portfolios of mitigation measures illustrated in Figure SPM.3b.

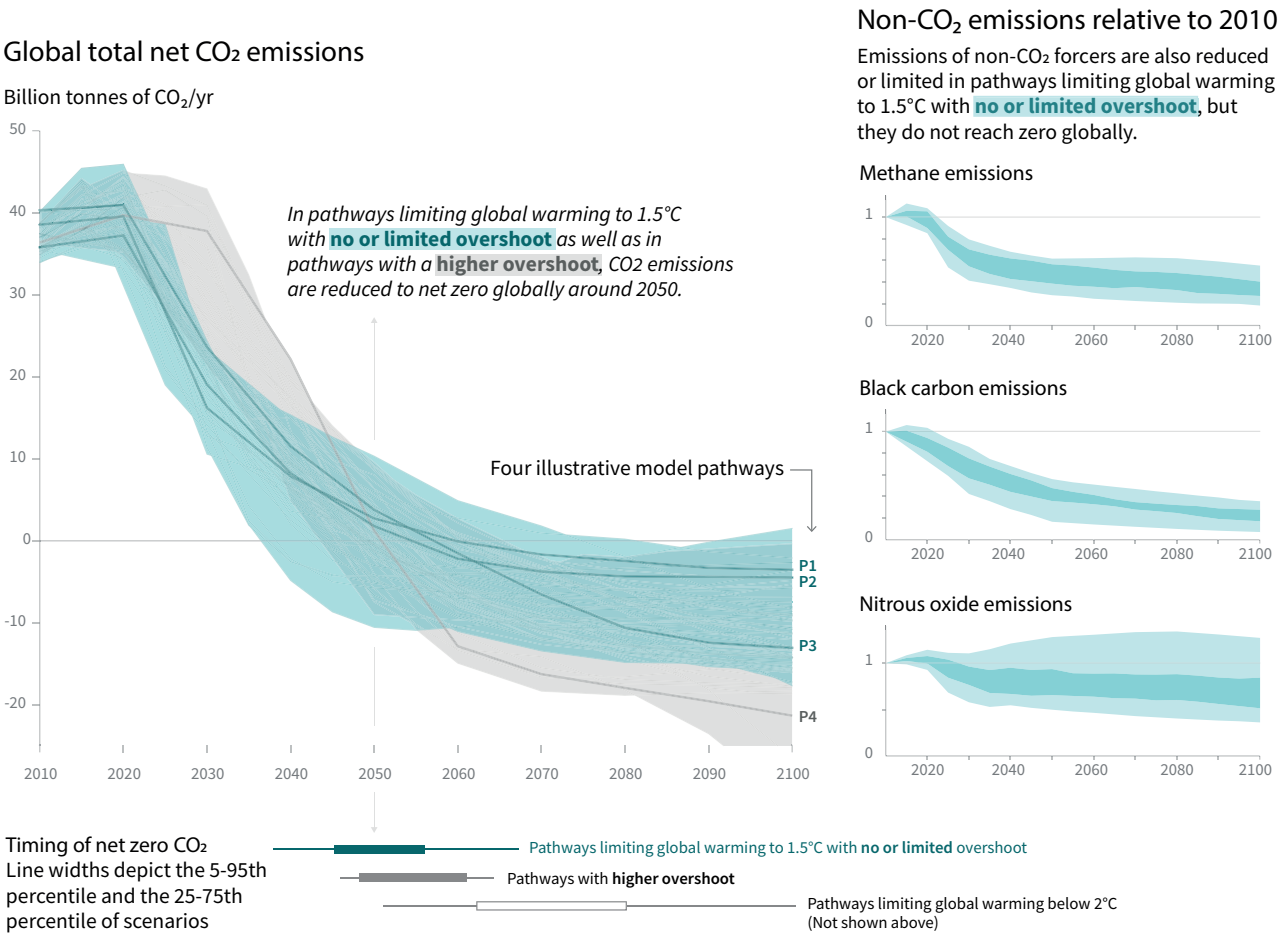
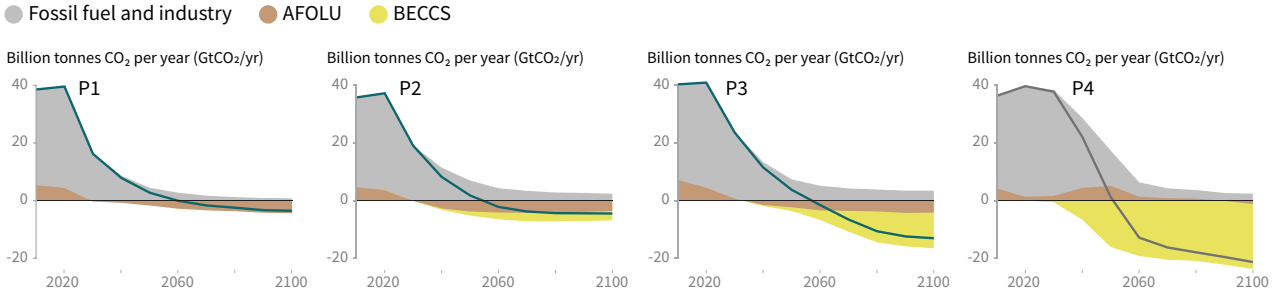


Figure SPM.3a | Global emissions pathway characteristics. The main panel shows global net anthropogenic CO_2 emissions in pathways limiting global warming to 1.5°C with no or limited (less than 0.1°C) overshoot and pathways with higher overshoot. The shaded area shows the full range for pathways analysed in this Report. The panels on the right show non-CO_2 emissions ranges for three compounds with large historical forcing and a substantial portion of emissions coming from sources distinct from those central to CO_2 mitigation. Shaded areas in these panels show the 5–95% (light shading) and interquartile (dark shading) ranges of pathways limiting global warming to 1.5°C with no or limited overshoot. Box and whiskers at the bottom of the figure show the timing of pathways reaching global net zero CO_2 emission levels, and a comparison with pathways limiting global warming to 2°C with at least 66% probability. Four illustrative model pathways are highlighted in the main panel and are labelled P1, P2, P3 and P4, corresponding to the LED, S1, S2, and S5 pathways assessed in Chapter 2. Descriptions and characteristics of these pathways are available in Figure SPM.3b. {2.1, 2.2, 2.3, Figure 2.5, Figure 2.10, Figure 2.11}

Characteristics of four illustrative model pathways

Different mitigation strategies can achieve the net emissions reductions that would be required to follow a pathway that limits global warming to 1.5°C with no or limited overshoot. All pathways use Carbon Dioxide Removal (CDR), but the amount varies across pathways, as do the relative contributions of Bioenergy with Carbon Capture and Storage (BECCS) and removals in the Agriculture, Forestry and Other Land Use (AFOLU) sector. This has implications for emissions and several other pathway characteristics.

Breakdown of contributions to global net CO_2 emissions in four illustrative model pathways



P1: A scenario in which social, business and technological innovations result in lower energy demand up to 2050 while living standards rise, especially in the global South. A downsized energy system enables rapid decarbonization of energy supply. Afforestation is the only CDR option considered; neither fossil fuels with CCS nor BECCS are used.

P2: A scenario with a broad focus on sustainability including energy intensity, human development, economic convergence and international cooperation, as well as shifts towards sustainable and healthy consumption patterns, low-carbon technology innovation, and well-managed land systems with limited societal acceptability for BECCS.

P3: A middle-of-the-road scenario in which societal as well as technological development follows historical patterns. Emissions reductions are mainly achieved by changing the way in which energy and products are produced, and to a lesser degree by reductions in demand.

P4: A resource- and energy-intensive scenario in which economic growth and globalization lead to widespread adoption of greenhouse-gas-intensive lifestyles, including high demand for transportation fuels and livestock products. Emissions reductions are mainly achieved through technological means, making strong use of CDR through the deployment of BECCS.

Global indicators	P1	P2	P3	P4	**Interquartile range**
Pathway classification	No or limited overshoot	No or limited overshoot	No or limited overshoot	Higher overshoot	No or limited overshoot
CO_2 emission change in 2030 (% rel to 2010)	-58	-47	-41	4	(-58,-40)
↳ in 2050 (% rel to 2010)	-93	-95	-91	-97	(-107,-94)
Kyoto-GHG emissions in 2030 (% rel to 2010)*	-50	-49	-35	-2	(-51,-39)
↳ in 2050 (% rel to 2010)	-82	-89	-78	-80	(-93,-81)
*Final energy demand** in 2030 (% rel to 2010)*	-15	-5	17	39	(-12,7)
↳ in 2050 (% rel to 2010)	-32	2	21	44	(-11,22)
Renewable share in electricity in 2030 (%)	60	58	48	25	(47,65)
↳ in 2050 (%)	77	81	63	70	(69,86)
Primary energy from coal in 2030 (% rel to 2010)	-78	-61	-75	-59	(-78, -59)
↳ in 2050 (% rel to 2010)	-97	-77	-73	-97	(-95, -74)
from oil in 2030 (% rel to 2010)	-37	-13	-3	86	(-34,3)
↳ in 2050 (% rel to 2010)	-87	-50	-81	-32	(-78,-31)
from gas in 2030 (% rel to 2010)	-25	-20	33	37	(-26,21)
↳ in 2050 (% rel to 2010)	-74	-53	21	-48	(-56,6)
from nuclear in 2030 (% rel to 2010)	59	83	98	106	(44,102)
↳ in 2050 (% rel to 2010)	150	98	501	468	(91,190)
from biomass in 2030 (% rel to 2010)	-11	0	36	-1	(29,80)
↳ in 2050 (% rel to 2010)	-16	49	121	418	(123,261)
from non-biomass renewables in 2030 (% rel to 2010)	430	470	315	110	(245,436)
↳ in 2050 (% rel to 2010)	833	1327	878	1137	(576,1299)
Cumulative CCS until 2100 ($GtCO_2$)	0	348	687	1218	(550,1017)
↳ of which BECCS ($GtCO_2$)	0	151	414	1191	(364,662)
Land area of bioenergy crops in 2050 (million km^2)	0.2	0.9	2.8	7.2	(1.5,3.2)
Agricultural CH_4 emissions in 2030 (% rel to 2010)	-24	-48	1	14	(-30,-11)
in 2050 (% rel to 2010)	-33	-69	-23	2	(-47,-24)
Agricultural N_2O emissions in 2030 (% rel to 2010)	5	-26	15	3	(-21,3)
in 2050 (% rel to 2010)	6	-26	0	39	(-26,1)

NOTE: Indicators have been selected to show global trends identified by the Chapter 2 assessment. National and sectoral characteristics can differ substantially from the global trends shown above.

** Kyoto-gas emissions are based on IPCC Second Assessment Report GWP-100*
*** Changes in energy demand are associated with improvements in energy efficiency and behaviour change*

Figure SPM.3b | Characteristics of four illustrative model pathways in relation to global warming of 1.5°C introduced in Figure SPM.3a. These pathways were selected to show a range of potential mitigation approaches and vary widely in their projected energy and land use, as well as their assumptions about future socio-economic developments, including economic and population growth, equity and sustainability. A breakdown of the global net anthropogenic CO_2 emissions into the contributions in terms of CO_2 emissions from fossil fuel and industry; agriculture, forestry and other land use (AFOLU); and bioenergy with carbon capture and storage (BECCS) is shown. AFOLU estimates reported here are not necessarily comparable with countries' estimates. Further characteristics for each of these pathways are listed below each pathway. These pathways illustrate relative global differences in mitigation strategies, but do not represent central estimates, national strategies, and do not indicate requirements. For comparison, the right-most column shows the interquartile ranges across pathways with no or limited overshoot of 1.5°C. Pathways P1, P2, P3 and P4 correspond to the LED, S1, S2 and S5 pathways assessed in Chapter 2 (Figure SPM.3a). {2.2.1, 2.3.1, 2.3.2, 2.3.3, 2.3.4, 2.4.1, 2.4.2, 2.4.4, 2.5.3, Figure 2.5, Figure 2.6, Figure 2.9, Figure 2.10, Figure 2.11, Figure 2.14, Figure 2.15, Figure 2.16, Figure 2.17, Figure 2.24, Figure 2.25, Table 2.4, Table 2.6, Table 2.7, Table 2.9, Table 4.1}

C.2 Pathways limiting global warming to 1.5°C with no or limited overshoot would require rapid and far-reaching transitions in energy, land, urban and infrastructure (including transport and buildings), and industrial systems (*high confidence*). These systems transitions are unprecedented in terms of scale, but not necessarily in terms of speed, and imply deep emissions reductions in all sectors, a wide portfolio of mitigation options and a significant upscaling of investments in those options (*medium confidence*). {2.3, 2.4, 2.5, 4.2, 4.3, 4.4, 4.5}

C.2.1 Pathways that limit global warming to 1.5°C with no or limited overshoot show system changes that are more rapid and pronounced over the next two decades than in 2°C pathways (*high confidence*). The rates of system changes associated with limiting global warming to 1.5°C with no or limited overshoot have occurred in the past within specific sectors, technologies and spatial contexts, but there is no documented historic precedent for their scale (*medium confidence*). {2.3.3, 2.3.4, 2.4, 2.5, 4.2.1, 4.2.2, Cross-Chapter Box 11 in Chapter 4}

C.2.2 In energy systems, modelled global pathways (considered in the literature) limiting global warming to 1.5°C with no or limited overshoot (for more details see Figure SPM.3b) generally meet energy service demand with lower energy use, including through enhanced energy efficiency, and show faster electrification of energy end use compared to 2°C (*high confidence*). In 1.5°C pathways with no or limited overshoot, low-emission energy sources are projected to have a higher share, compared with 2°C pathways, particularly before 2050 (*high confidence*). In 1.5°C pathways with no or limited overshoot, renewables are projected to supply 70–85% (interquartile range) of electricity in 2050 (*high confidence*). In electricity generation, shares of nuclear and fossil fuels with carbon dioxide capture and storage (CCS) are modelled to increase in most 1.5°C pathways with no or limited overshoot. In modelled 1.5°C pathways with limited or no overshoot, the use of CCS would allow the electricity generation share of gas to be approximately 8% (3–11% interquartile range) of global electricity in 2050, while the use of coal shows a steep reduction in all pathways and would be reduced to close to 0% (0–2% interquartile range) of electricity (*high confidence*). While acknowledging the challenges, and differences between the options and national circumstances, political, economic, social and technical feasibility of solar energy, wind energy and electricity storage technologies have substantially improved over the past few years (*high confidence*). These improvements signal a potential system transition in electricity generation. (Figure SPM.3b) {2.4.1, 2.4.2, Figure 2.1, Table 2.6, Table 2.7, Cross-Chapter Box 6 in Chapter 3, 4.2.1, 4.3.1, 4.3.3, 4.5.2}

C.2.3 CO_2 emissions from industry in pathways limiting global warming to 1.5°C with no or limited overshoot are projected to be about 65–90% (interquartile range) lower in 2050 relative to 2010, as compared to 50–80% for global warming of 2°C (*medium confidence*). Such reductions can be achieved through combinations of new and existing technologies and practices, including electrification, hydrogen, sustainable bio-based feedstocks, product substitution, and carbon capture, utilization and storage (CCUS). These options are technically proven at various scales but their large-scale deployment may be limited by economic, financial, human capacity and institutional constraints in specific contexts, and specific characteristics of large-scale industrial installations. In industry, emissions reductions by energy and process efficiency by themselves are insufficient for limiting warming to 1.5°C with no or limited overshoot (*high confidence*). {2.4.3, 4.2.1, Table 4.1, Table 4.3, 4.3.3, 4.3.4, 4.5.2}

C.2.4 The urban and infrastructure system transition consistent with limiting global warming to 1.5°C with no or limited overshoot would imply, for example, changes in land and urban planning practices, as well as deeper emissions reductions in transport and buildings compared to pathways that limit global warming below 2°C (*medium confidence*). Technical measures

and practices enabling deep emissions reductions include various energy efficiency options. In pathways limiting global warming to 1.5°C with no or limited overshoot, the electricity share of energy demand in buildings would be about 55–75% in 2050 compared to 50–70% in 2050 for 2°C global warming (*medium confidence*). In the transport sector, the share of low-emission final energy would rise from less than 5% in 2020 to about 35–65% in 2050 compared to 25–45% for 2°C of global warming (*medium confidence*). Economic, institutional and socio-cultural barriers may inhibit these urban and infrastructure system transitions, depending on national, regional and local circumstances, capabilities and the availability of capital (*high confidence*). {2.3.4, 2.4.3, 4.2.1, Table 4.1, 4.3.3, 4.5.2}

C.2.5 Transitions in global and regional land use are found in all pathways limiting global warming to 1.5°C with no or limited overshoot, but their scale depends on the pursued mitigation portfolio. Model pathways that limit global warming to 1.5°C with no or limited overshoot project a 4 million km^2 reduction to a 2.5 million km^2 increase of non-pasture agricultural land for food and feed crops and a 0.5–11 million km^2 reduction of pasture land, to be converted into a 0–6 million km^2 increase of agricultural land for energy crops and a 2 million km^2 reduction to 9.5 million km^2 increase in forests by 2050 relative to 2010 (*medium confidence*).[16] Land-use transitions of similar magnitude can be observed in modelled 2°C pathways (*medium confidence*). Such large transitions pose profound challenges for sustainable management of the various demands on land for human settlements, food, livestock feed, fibre, bioenergy, carbon storage, biodiversity and other ecosystem services (*high confidence*). Mitigation options limiting the demand for land include sustainable intensification of land-use practices, ecosystem restoration and changes towards less resource-intensive diets (*high confidence*). The implementation of land-based mitigation options would require overcoming socio-economic, institutional, technological, financing and environmental barriers that differ across regions (*high confidence*). {2.4.4, Figure 2.24, 4.3.2, 4.3.7, 4.5.2, Cross-Chapter Box 7 in Chapter 3}

C.2.6 Additional annual average energy-related investments for the period 2016 to 2050 in pathways limiting warming to 1.5°C compared to pathways without new climate policies beyond those in place today are estimated to be around 830 billion USD2010 (range of 150 billion to 1700 billion USD2010 across six models[17]). This compares to total annual average energy supply investments in 1.5°C pathways of 1460 to 3510 billion USD2010 and total annual average energy demand investments of 640 to 910 billion USD2010 for the period 2016 to 2050. Total energy-related investments increase by about 12% (range of 3% to 24%) in 1.5°C pathways relative to 2°C pathways. Annual investments in low-carbon energy technologies and energy efficiency are upscaled by roughly a factor of six (range of factor of 4 to 10) by 2050 compared to 2015 (*medium confidence*). {2.5.2, Box 4.8, Figure 2.27}

C.2.7 Modelled pathways limiting global warming to 1.5°C with no or limited overshoot project a wide range of global average discounted marginal abatement costs over the 21st century. They are roughly 3-4 times higher than in pathways limiting global warming to below 2°C (*high confidence*). The economic literature distinguishes marginal abatement costs from total mitigation costs in the economy. The literature on total mitigation costs of 1.5°C mitigation pathways is limited and was not assessed in this Report. Knowledge gaps remain in the integrated assessment of the economy-wide costs and benefits of mitigation in line with pathways limiting warming to 1.5°C. {2.5.2; 2.6; Figure 2.26}

16 The projected land-use changes presented are not deployed to their upper limits simultaneously in a single pathway.

17 Including two pathways limiting warming to 1.5°C with no or limited overshoot and four pathways with higher overshoot.

C.3 All pathways that limit global warming to 1.5°C with limited or no overshoot project the use of carbon dioxide removal (CDR) on the order of 100–1000 $GtCO_2$ over the 21st century. CDR would be used to compensate for residual emissions and, in most cases, achieve net negative emissions to return global warming to 1.5°C following a peak (*high confidence*). CDR deployment of several hundreds of $GtCO_2$ is subject to multiple feasibility and sustainability constraints (*high confidence*). Significant near-term emissions reductions and measures to lower energy and land demand can limit CDR deployment to a few hundred $GtCO_2$ without reliance on bioenergy with carbon capture and storage (BECCS) (*high confidence*). {2.3, 2.4, 3.6.2, 4.3, 5.4}

C.3.1 Existing and potential CDR measures include afforestation and reforestation, land restoration and soil carbon sequestration, BECCS, direct air carbon capture and storage (DACCS), enhanced weathering and ocean alkalinization. These differ widely in terms of maturity, potentials, costs, risks, co-benefits and trade-offs (*high confidence*). To date, only a few published pathways include CDR measures other than afforestation and BECCS. {2.3.4, 3.6.2, 4.3.2, 4.3.7}

C.3.2 In pathways limiting global warming to 1.5°C with limited or no overshoot, BECCS deployment is projected to range from 0–1, 0–8, and 0–16 $GtCO_2\ yr^{-1}$ in 2030, 2050, and 2100, respectively, while agriculture, forestry and land-use (AFOLU) related CDR measures are projected to remove 0–5, 1–11, and 1–5 $GtCO_2\ yr^{-1}$ in these years (*medium confidence*). The upper end of these deployment ranges by mid-century exceeds the BECCS potential of up to 5 $GtCO_2\ yr^{-1}$ and afforestation potential of up to 3.6 $GtCO_2\ yr^{-1}$ assessed based on recent literature (*medium confidence*). Some pathways avoid BECCS deployment completely through demand-side measures and greater reliance on AFOLU-related CDR measures (*medium confidence*). The use of bioenergy can be as high or even higher when BECCS is excluded compared to when it is included due to its potential for replacing fossil fuels across sectors (*high confidence*). (Figure SPM.3b) {2.3.3, 2.3.4, 2.4.2, 3.6.2, 4.3.1, 4.2.3, 4.3.2, 4.3.7, 4.4.3, Table 2.4}

C.3.3 Pathways that overshoot 1.5°C of global warming rely on CDR exceeding residual CO_2 emissions later in the century to return to below 1.5°C by 2100, with larger overshoots requiring greater amounts of CDR (Figure SPM.3b) (*high confidence*). Limitations on the speed, scale, and societal acceptability of CDR deployment hence determine the ability to return global warming to below 1.5°C following an overshoot. Carbon cycle and climate system understanding is still limited about the effectiveness of net negative emissions to reduce temperatures after they peak (*high confidence*). {2.2, 2.3.4, 2.3.5, 2.6, 4.3.7, 4.5.2, Table 4.11}

C.3.4 Most current and potential CDR measures could have significant impacts on land, energy, water or nutrients if deployed at large scale (*high confidence*). Afforestation and bioenergy may compete with other land uses and may have significant impacts on agricultural and food systems, biodiversity, and other ecosystem functions and services (*high confidence*). Effective governance is needed to limit such trade-offs and ensure permanence of carbon removal in terrestrial, geological and ocean reservoirs (*high confidence*). Feasibility and sustainability of CDR use could be enhanced by a portfolio of options deployed at substantial, but lesser scales, rather than a single option at very large scale (*high confidence*). (Figure SPM.3b) {2.3.4, 2.4.4, 2.5.3, 2.6, 3.6.2, 4.3.2, 4.3.7, 4.5.2, 5.4.1, 5.4.2; Cross-Chapter Boxes 7 and 8 in Chapter 3, Table 4.11, Table 5.3, Figure 5.3}

C.3.5 Some AFOLU-related CDR measures such as restoration of natural ecosystems and soil carbon sequestration could provide co-benefits such as improved biodiversity, soil quality, and local food security. If deployed at large scale, they would require governance systems enabling sustainable land management to conserve and protect land carbon stocks and other ecosystem functions and services (*medium confidence*). (Figure SPM.4) {2.3.3, 2.3.4, 2.4.2, 2.4.4, 3.6.2, 5.4.1, Cross-Chapter Boxes 3 in Chapter 1 and 7 in Chapter 3, 4.3.2, 4.3.7, 4.4.1, 4.5.2, Table 2.4}

D. Strengthening the Global Response in the Context of Sustainable Development and Efforts to Eradicate Poverty

D.1 Estimates of the global emissions outcome of current nationally stated mitigation ambitions as submitted under the Paris Agreement would lead to global greenhouse gas emissions[18] in 2030 of 52–58 $GtCO_2eq\ yr^{-1}$ (*medium confidence*). Pathways reflecting these ambitions would not limit global warming to 1.5°C, even if supplemented by very challenging increases in the scale and ambition of emissions reductions after 2030 (*high confidence*). Avoiding overshoot and reliance on future large-scale deployment of carbon dioxide removal (CDR) can only be achieved if global CO_2 emissions start to decline well before 2030 (*high confidence*). {1.2, 2.3, 3.3, 3.4, 4.2, 4.4, Cross-Chapter Box 11 in Chapter 4}

D.1.1 Pathways that limit global warming to 1.5°C with no or limited overshoot show clear emission reductions by 2030 (*high confidence*). All but one show a decline in global greenhouse gas emissions to below 35 $GtCO_2eq\ yr^{-1}$ in 2030, and half of available pathways fall within the 25–30 $GtCO_2eq\ yr^{-1}$ range (interquartile range), a 40–50% reduction from 2010 levels (*high confidence*). Pathways reflecting current nationally stated mitigation ambition until 2030 are broadly consistent with cost-effective pathways that result in a global warming of about 3°C by 2100, with warming continuing afterwards (*medium confidence*). {2.3.3, 2.3.5, Cross-Chapter Box 11 in Chapter 4, 5.5.3.2}

D.1.2 Overshoot trajectories result in higher impacts and associated challenges compared to pathways that limit global warming to 1.5°C with no or limited overshoot (*high confidence*). Reversing warming after an overshoot of 0.2°C or larger during this century would require upscaling and deployment of CDR at rates and volumes that might not be achievable given considerable implementation challenges (*medium confidence*). {1.3.3, 2.3.4, 2.3.5, 2.5.1, 3.3, 4.3.7, Cross-Chapter Box 8 in Chapter 3, Cross-Chapter Box 11 in Chapter 4}

D.1.3 The lower the emissions in 2030, the lower the challenge in limiting global warming to 1.5°C after 2030 with no or limited overshoot (*high confidence*). The challenges from delayed actions to reduce greenhouse gas emissions include the risk of cost escalation, lock-in in carbon-emitting infrastructure, stranded assets, and reduced flexibility in future response options in the medium to long term (*high confidence*). These may increase uneven distributional impacts between countries at different stages of development (*medium confidence*). {2.3.5, 4.4.5, 5.4.2}

D.2 The avoided climate change impacts on sustainable development, eradication of poverty and reducing inequalities would be greater if global warming were limited to 1.5°C rather than 2°C, if mitigation and adaptation synergies are maximized while trade-offs are minimized (*high confidence*). {1.1, 1.4, 2.5, 3.3, 3.4, 5.2, Table 5.1}

D.2.1 Climate change impacts and responses are closely linked to sustainable development which balances social well-being, economic prosperity and environmental protection. The United Nations Sustainable Development Goals (SDGs), adopted in 2015, provide an established framework for assessing the links between global warming of 1.5°C or 2°C and development goals that include poverty eradication, reducing inequalities, and climate action. (*high confidence*) {Cross-Chapter Box 4 in Chapter 1, 1.4, 5.1}

D.2.2 The consideration of ethics and equity can help address the uneven distribution of adverse impacts associated with 1.5°C and higher levels of global warming, as well as those from mitigation and adaptation, particularly for poor and disadvantaged populations, in all societies (*high confidence*). {1.1.1, 1.1.2, 1.4.3, 2.5.3, 3.4.10, 5.1, 5.2, 5.3. 5.4, Cross-Chapter Box 4 in Chapter 1, Cross-Chapter Boxes 6 and 8 in Chapter 3, and Cross-Chapter Box 12 in Chapter 5}

D.2.3 Mitigation and adaptation consistent with limiting global warming to 1.5°C are underpinned by enabling conditions, assessed in this Report across the geophysical, environmental-ecological, technological, economic, socio-cultural and institutional

18 GHG emissions have been aggregated with 100-year GWP values as introduced in the IPCC Second Assessment Report.

dimensions of feasibility. Strengthened multilevel governance, institutional capacity, policy instruments, technological innovation and transfer and mobilization of finance, and changes in human behaviour and lifestyles are enabling conditions that enhance the feasibility of mitigation and adaptation options for 1.5°C-consistent systems transitions. (*high confidence*) {1.4, Cross-Chapter Box 3 in Chapter 1, 2.5.1, 4.4, 4.5, 5.6}

D.3 Adaptation options specific to national contexts, if carefully selected together with enabling conditions, will have benefits for sustainable development and poverty reduction with global warming of 1.5°C, although trade-offs are possible (*high confidence*). {1.4, 4.3, 4.5}

D.3.1 Adaptation options that reduce the vulnerability of human and natural systems have many synergies with sustainable development, if well managed, such as ensuring food and water security, reducing disaster risks, improving health conditions, maintaining ecosystem services and reducing poverty and inequality (*high confidence*). Increasing investment in physical and social infrastructure is a key enabling condition to enhance the resilience and the adaptive capacities of societies. These benefits can occur in most regions with adaptation to 1.5°C of global warming (*high confidence*). {1.4.3, 4.2.2, 4.3.1, 4.3.2, 4.3.3, 4.3.5, 4.4.1, 4.4.3, 4.5.3, 5.3.1, 5.3.2}

D.3.2 Adaptation to 1.5°C global warming can also result in trade-offs or maladaptations with adverse impacts for sustainable development. For example, if poorly designed or implemented, adaptation projects in a range of sectors can increase greenhouse gas emissions and water use, increase gender and social inequality, undermine health conditions, and encroach on natural ecosystems (*high confidence*). These trade-offs can be reduced by adaptations that include attention to poverty and sustainable development (*high confidence*). {4.3.2, 4.3.3, 4.5.4, 5.3.2; Cross-Chapter Boxes 6 and 7 in Chapter 3}

D.3.3 A mix of adaptation and mitigation options to limit global warming to 1.5°C, implemented in a participatory and integrated manner, can enable rapid, systemic transitions in urban and rural areas (*high confidence*). These are most effective when aligned with economic and sustainable development, and when local and regional governments and decision makers are supported by national governments (*medium confidence*). {4.3.2, 4.3.3, 4.4.1, 4.4.2}

D.3.4 Adaptation options that also mitigate emissions can provide synergies and cost savings in most sectors and system transitions, such as when land management reduces emissions and disaster risk, or when low-carbon buildings are also designed for efficient cooling. Trade-offs between mitigation and adaptation, when limiting global warming to 1.5°C, such as when bioenergy crops, reforestation or afforestation encroach on land needed for agricultural adaptation, can undermine food security, livelihoods, ecosystem functions and services and other aspects of sustainable development. (*high confidence*) {3.4.3, 4.3.2, 4.3.4, 4.4.1, 4.5.2, 4.5.3, 4.5.4}

D.4 Mitigation options consistent with 1.5°C pathways are associated with multiple synergies and trade-offs across the Sustainable Development Goals (SDGs). While the total number of possible synergies exceeds the number of trade-offs, their net effect will depend on the pace and magnitude of changes, the composition of the mitigation portfolio and the management of the transition. (*high confidence*) (Figure SPM.4) {2.5, 4.5, 5.4}

D.4.1 1.5°C pathways have robust synergies particularly for the SDGs 3 (health), 7 (clean energy), 11 (cities and communities), 12 (responsible consumption and production) and 14 (oceans) (*very high confidence*). Some 1.5°C pathways show potential trade-offs with mitigation for SDGs 1 (poverty), 2 (hunger), 6 (water) and 7 (energy access), if not managed carefully (*high confidence*). (Figure SPM.4) {5.4.2; Figure 5.4, Cross-Chapter Boxes 7 and 8 in Chapter 3}

D.4.2 1.5°C pathways that include low energy demand (e.g., see P1 in Figure SPM.3a and SPM.3b), low material consumption, and low GHG-intensive food consumption have the most pronounced synergies and the lowest number of trade-offs with respect to sustainable development and the SDGs (*high confidence*). Such pathways would reduce dependence on CDR. In modelled pathways, sustainable development, eradicating poverty and reducing inequality can support limiting warming to 1.5°C (*high confidence*). (Figure SPM.3b, Figure SPM.4) {2.4.3, 2.5.1, 2.5.3, Figure 2.4, Figure 2.28, 5.4.1, 5.4.2, Figure 5.4}

Indicative linkages between mitigation options and sustainable development using SDGs (The linkages do not show costs and benefits)

Mitigation options deployed in each sector can be associated with potential positive effects (synergies) or negative effects (trade-offs) with the Sustainable Development Goals (SDGs). The degree to which this potential is realized will depend on the selected portfolio of mitigation options, mitigation policy design, and local circumstances and context. Particularly in the energy-demand sector, the potential for synergies is larger than for trade-offs. The bars group individually assessed options by level of confidence and take into account the relative strength of the assessed mitigation-SDG connections.

Length shows strength of connection

The overall **size of the coloured bars** depict **the relative potential** for synergies and trade-offs between the sectoral mitigation options and the SDGs.

Shades show level of confidence

The shades depict **the level of confidence** of the assessed potential for **Trade-offs**/**Synergies**.

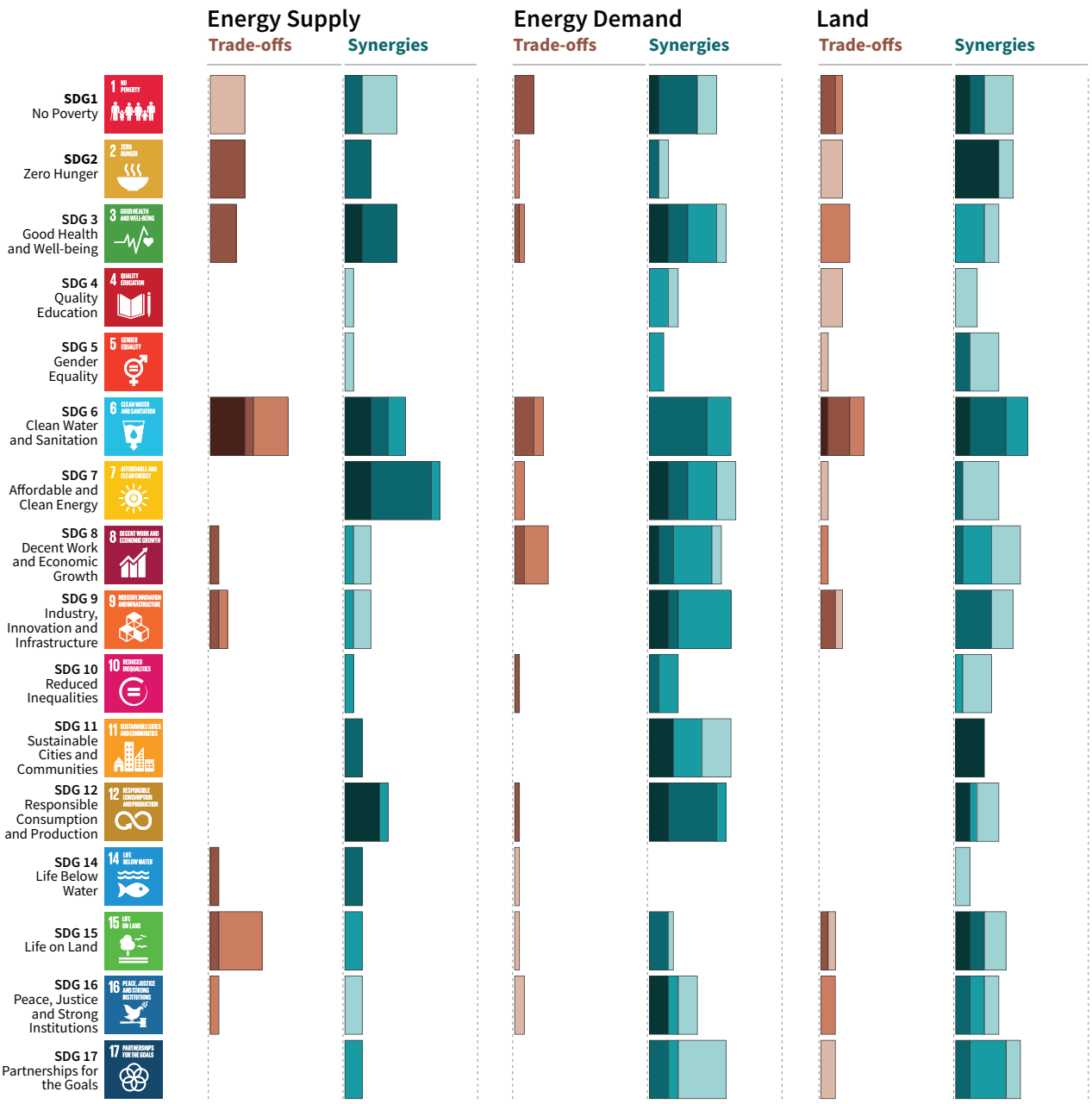


Figure SPM.4 | Potential synergies and trade-offs between the sectoral portfolio of climate change mitigation options and the Sustainable Development Goals (SDGs). The SDGs serve as an analytical framework for the assessment of the different sustainable development dimensions, which extend beyond the time frame of the 2030 SDG targets. The assessment is based on literature on mitigation options that are considered relevant for 1.5ºC. The assessed strength of the SDG interactions is based on the qualitative and quantitative assessment of individual mitigation options listed in Table 5.2. For each mitigation option, the strength of the SDG-connection as well as the associated confidence of the underlying literature (shades of green and red) was assessed. The strength of positive connections (synergies) and negative connections (trade-offs) across all individual options within a sector (see Table 5.2) are aggregated into sectoral potentials for the whole mitigation portfolio. The (white) areas outside the bars, which indicate no interactions, have *low confidence* due to the uncertainty and limited number of studies exploring indirect effects. The strength of the connection considers only the effect of mitigation and does not include benefits of avoided impacts. SDG 13 (climate action) is not listed because mitigation is being considered in terms of interactions with SDGs and not vice versa. The bars denote the strength of the connection, and do not consider the strength of the impact on the SDGs. The energy demand sector comprises behavioural responses, fuel switching and efficiency options in the transport, industry and building sector as well as carbon capture options in the industry sector. Options assessed in the energy supply sector comprise biomass and non-biomass renewables, nuclear, carbon capture and storage (CCS) with bioenergy, and CCS with fossil fuels. Options in the land sector comprise agricultural and forest options, sustainable diets and reduced food waste, soil sequestration, livestock and manure management, reduced deforestation, afforestation and reforestation, and responsible sourcing. In addition to this figure, options in the ocean sector are discussed in the underlying report. {5.4, Table 5.2, Figure 5.2}

Information about the net impacts of mitigation on sustainable development in 1.5°C pathways is available only for a limited number of SDGs and mitigation options. Only a limited number of studies have assessed the benefits of avoided climate change impacts of 1.5°C pathways for the SDGs, and the co-effects of adaptation for mitigation and the SDGs. The assessment of the indicative mitigation potentials in Figure SPM.4 is a step further from AR5 towards a more comprehensive and integrated assessment in the future.

D.4.3 1.5°C and 2°C modelled pathways often rely on the deployment of large-scale land-related measures like afforestation and bioenergy supply, which, if poorly managed, can compete with food production and hence raise food security concerns (*high confidence*). The impacts of carbon dioxide removal (CDR) options on SDGs depend on the type of options and the scale of deployment (*high confidence*). If poorly implemented, CDR options such as BECCS and AFOLU options would lead to trade-offs. Context-relevant design and implementation requires considering people's needs, biodiversity, and other sustainable development dimensions (*very high confidence*). (Figure SPM.4) {5.4.1.3, Cross-Chapter Box 7 in Chapter 3}

D.4.4 Mitigation consistent with 1.5°C pathways creates risks for sustainable development in regions with high dependency on fossil fuels for revenue and employment generation (*high confidence*). Policies that promote diversification of the economy and the energy sector can address the associated challenges (*high confidence*). {5.4.1.2, Box 5.2}

D.4.5 Redistributive policies across sectors and populations that shield the poor and vulnerable can resolve trade-offs for a range of SDGs, particularly hunger, poverty and energy access. Investment needs for such complementary policies are only a small fraction of the overall mitigation investments in 1.5°C pathways. (*high confidence*) {2.4.3, 5.4.2, Figure 5.5}

D.5 Limiting the risks from global warming of 1.5°C in the context of sustainable development and poverty eradication implies system transitions that can be enabled by an increase of adaptation and mitigation investments, policy instruments, the acceleration of technological innovation and behaviour changes (*high confidence*). {2.3, 2.4, 2.5, 3.2, 4.2, 4.4, 4.5, 5.2, 5.5, 5.6}

D.5.1 Directing finance towards investment in infrastructure for mitigation and adaptation could provide additional resources. This could involve the mobilization of private funds by institutional investors, asset managers and development or investment banks, as well as the provision of public funds. Government policies that lower the risk of low-emission and adaptation investments can facilitate the mobilization of private funds and enhance the effectiveness of other public policies. Studies indicate a number of challenges, including access to finance and mobilization of funds. (*high confidence*) {2.5.1, 2.5.2, 4.4.5}

D.5.2 Adaptation finance consistent with global warming of 1.5°C is difficult to quantify and compare with 2°C. Knowledge gaps include insufficient data to calculate specific climate resilience-enhancing investments from the provision of currently underinvested basic infrastructure. Estimates of the costs of adaptation might be lower at global warming of 1.5°C than for 2°C. Adaptation needs have typically been supported by public sector sources such as national and subnational government budgets, and in developing countries together with support from development assistance, multilateral development banks, and United Nations Framework Convention on Climate Change channels (*medium confidence*). More recently there is a

growing understanding of the scale and increase in non-governmental organizations and private funding in some regions (*medium confidence*). Barriers include the scale of adaptation financing, limited capacity and access to adaptation finance (*medium confidence*). {4.4.5, 4.6}

D.5.3 Global model pathways limiting global warming to 1.5°C are projected to involve the annual average investment needs in the energy system of around 2.4 trillion USD2010 between 2016 and 2035, representing about 2.5% of the world GDP (*medium confidence*). {4.4.5, Box 4.8}

D.5.4 Policy tools can help mobilize incremental resources, including through shifting global investments and savings and through market and non-market based instruments as well as accompanying measures to secure the equity of the transition, acknowledging the challenges related with implementation, including those of energy costs, depreciation of assets and impacts on international competition, and utilizing the opportunities to maximize co-benefits (*high confidence*). {1.3.3, 2.3.4, 2.3.5, 2.5.1, 2.5.2, Cross-Chapter Box 8 in Chapter 3, Cross-Chapter Box 11 in Chapter 4, 4.4.5, 5.5.2}

D.5.5 The systems transitions consistent with adapting to and limiting global warming to 1.5°C include the widespread adoption of new and possibly disruptive technologies and practices and enhanced climate-driven innovation. These imply enhanced technological innovation capabilities, including in industry and finance. Both national innovation policies and international cooperation can contribute to the development, commercialization and widespread adoption of mitigation and adaptation technologies. Innovation policies may be more effective when they combine public support for research and development with policy mixes that provide incentives for technology diffusion. (*high confidence*) {4.4.4, 4.4.5}.

D.5.6 Education, information, and community approaches, including those that are informed by indigenous knowledge and local knowledge, can accelerate the wide-scale behaviour changes consistent with adapting to and limiting global warming to 1.5°C. These approaches are more effective when combined with other policies and tailored to the motivations, capabilities and resources of specific actors and contexts (*high confidence*). Public acceptability can enable or inhibit the implementation of policies and measures to limit global warming to 1.5°C and to adapt to the consequences. Public acceptability depends on the individual's evaluation of expected policy consequences, the perceived fairness of the distribution of these consequences, and perceived fairness of decision procedures (*high confidence*). {1.1, 1.5, 4.3.5, 4.4.1, 4.4.3, Box 4.3, 5.5.3, 5.6.5}

D.6 Sustainable development supports, and often enables, the fundamental societal and systems transitions and transformations that help limit global warming to 1.5°C. Such changes facilitate the pursuit of climate-resilient development pathways that achieve ambitious mitigation and adaptation in conjunction with poverty eradication and efforts to reduce inequalities (*high confidence*). {Box 1.1, 1.4.3, Figure 5.1, 5.5.3, Box 5.3}

D.6.1 Social justice and equity are core aspects of climate-resilient development pathways that aim to limit global warming to 1.5°C as they address challenges and inevitable trade-offs, widen opportunities, and ensure that options, visions, and values are deliberated, between and within countries and communities, without making the poor and disadvantaged worse off (*high confidence*). {5.5.2, 5.5.3, Box 5.3, Figure 5.1, Figure 5.6, Cross-Chapter Boxes 12 and 13 in Chapter 5}

D.6.2 The potential for climate-resilient development pathways differs between and within regions and nations, due to different development contexts and systemic vulnerabilities (*very high confidence*). Efforts along such pathways to date have been limited (*medium confidence*) and enhanced efforts would involve strengthened and timely action from all countries and non-state actors (*high confidence*). {5.5.1, 5.5.3, Figure 5.1}

D.6.3 Pathways that are consistent with sustainable development show fewer mitigation and adaptation challenges and are associated with lower mitigation costs. The large majority of modelling studies could not construct pathways characterized by lack of international cooperation, inequality and poverty that were able to limit global warming to 1.5°C. (*high confidence*) {2.3.1, 2.5.1, 2.5.3, 5.5.2}

D.7 Strengthening the capacities for climate action of national and sub-national authorities, civil society, the private sector, indigenous peoples and local communities can support the implementation of ambitious actions implied by limiting global warming to 1.5°C (*high confidence*). International cooperation can provide an enabling environment for this to be achieved in all countries and for all people, in the context of sustainable development. International cooperation is a critical enabler for developing countries and vulnerable regions (*high confidence*). {1.4, 2.3, 2.5, 4.2, 4.4, 4.5, 5.3, 5.4, 5.5, 5.6, 5, Box 4.1, Box 4.2, Box 4.7, Box 5.3, Cross-Chapter Box 9 in Chapter 4, Cross-Chapter Box 13 in Chapter 5}

D.7.1 Partnerships involving non-state public and private actors, institutional investors, the banking system, civil society and scientific institutions would facilitate actions and responses consistent with limiting global warming to 1.5°C (*very high confidence*). {1.4, 4.4.1, 4.2.2, 4.4.3, 4.4.5, 4.5.3, 5.4.1, 5.6.2, Box 5.3}.

D.7.2 Cooperation on strengthened accountable multilevel governance that includes non-state actors such as industry, civil society and scientific institutions, coordinated sectoral and cross-sectoral policies at various governance levels, gender-sensitive policies, finance including innovative financing, and cooperation on technology development and transfer can ensure participation, transparency, capacity building and learning among different players (*high confidence*). {2.5.1, 2.5.2, 4.2.2, 4.4.1, 4.4.2, 4.4.3, 4.4.4, 4.4.5, 4.5.3, Cross-Chapter Box 9 in Chapter 4, 5.3.1, 5.5.3, Cross-Chapter Box 13 in Chapter 5, 5.6.1, 5.6.3}

D.7.3 International cooperation is a critical enabler for developing countries and vulnerable regions to strengthen their action for the implementation of 1.5°C-consistent climate responses, including through enhancing access to finance and technology and enhancing domestic capacities, taking into account national and local circumstances and needs (*high confidence*). {2.3.1, 2.5.1, 4.4.1, 4.4.2, 4.4.4, 4.4.5, 5.4.1 5.5.3, 5.6.1, Box 4.1, Box 4.2, Box 4.7}.

D.7.4 Collective efforts at all levels, in ways that reflect different circumstances and capabilities, in the pursuit of limiting global warming to 1.5°C, taking into account equity as well as effectiveness, can facilitate strengthening the global response to climate change, achieving sustainable development and eradicating poverty (*high confidence*). {1.4.2, 2.3.1, 2.5.1, 2.5.2, 2.5.3, 4.2.2, 4.4.1, 4.4.2, 4.4.3, 4.4.4, 4.4.5, 4.5.3, 5.3.1, 5.4.1, 5.5.3, 5.6.1, 5.6.2, 5.6.3}

Box SPM.1: Core Concepts Central to this Special Report

Global mean surface temperature (GMST): Estimated global average of near-surface air temperatures over land and sea ice, and sea surface temperatures over ice-free ocean regions, with changes normally expressed as departures from a value over a specified reference period. When estimating changes in GMST, near-surface air temperature over both land and oceans are also used.[19] {1.2.1.1}

Pre-industrial: The multi-century period prior to the onset of large-scale industrial activity around 1750. The reference period 1850–1900 is used to approximate pre-industrial GMST. {1.2.1.2}

Global warming: The estimated increase in GMST averaged over a 30-year period, or the 30-year period centred on a particular year or decade, expressed relative to pre-industrial levels unless otherwise specified. For 30-year periods that span past and future years, the current multi-decadal warming trend is assumed to continue. {1.2.1}

Net zero CO_2 emissions: Net zero carbon dioxide (CO_2) emissions are achieved when anthropogenic CO_2 emissions are balanced globally by anthropogenic CO_2 removals over a specified period.

Carbon dioxide removal (CDR): Anthropogenic activities removing CO_2 from the atmosphere and durably storing it in geological, terrestrial, or ocean reservoirs, or in products. It includes existing and potential anthropogenic enhancement of biological or geochemical sinks and direct air capture and storage, but excludes natural CO_2 uptake not directly caused by human activities.

Total carbon budget: Estimated cumulative net global anthropogenic CO_2 emissions from the pre-industrial period to the time that anthropogenic CO_2 emissions reach net zero that would result, at some probability, in limiting global warming to a given level, accounting for the impact of other anthropogenic emissions. {2.2.2}

Remaining carbon budget: Estimated cumulative net global anthropogenic CO_2 emissions from a given start date to the time that anthropogenic CO_2 emissions reach net zero that would result, at some probability, in limiting global warming to a given level, accounting for the impact of other anthropogenic emissions. {2.2.2}

Temperature overshoot: The temporary exceedance of a specified level of global warming.

Emission pathways: In this Summary for Policymakers, the modelled trajectories of global anthropogenic emissions over the 21st century are termed emission pathways. Emission pathways are classified by their temperature trajectory over the 21st century: pathways giving at least 50% probability based on current knowledge of limiting global warming to below 1.5°C are classified as 'no overshoot'; those limiting warming to below 1.6°C and returning to 1.5°C by 2100 are classified as '1.5°C limited-overshoot'; while those exceeding 1.6°C but still returning to 1.5°C by 2100 are classified as 'higher-overshoot'.

Impacts: Effects of climate change on human and natural systems. Impacts can have beneficial or adverse outcomes for livelihoods, health and well-being, ecosystems and species, services, infrastructure, and economic, social and cultural assets.

Risk: The potential for adverse consequences from a climate-related hazard for human and natural systems, resulting from the interactions between the hazard and the vulnerability and exposure of the affected system. Risk integrates the likelihood of exposure to a hazard and the magnitude of its impact. Risk also can describe the potential for adverse consequences of adaptation or mitigation responses to climate change.

Climate-resilient development pathways (CRDPs): Trajectories that strengthen sustainable development at multiple scales and efforts to eradicate poverty through equitable societal and systems transitions and transformations while reducing the threat of climate change through ambitious mitigation, adaptation and climate resilience.

19 Past IPCC reports, reflecting the literature, have used a variety of approximately equivalent metrics of GMST change.

This Exhibit "B" referred to in the affidavit of
Kathleen Eleanor Sullivan
affirmed before me on **December 20, 2018**

Commissioner for Taking Affidavits

CERTIFIED FOR PUBLICATION

IN THE COURT OF APPEAL OF THE STATE OF CALIFORNIA

THIRD APPELLATE DISTRICT

(Sacramento)

CALIFORNIA CHAMBER OF COMMERCE et al.,

Plaintiffs and Appellants,

v.

STATE AIR RESOURCES BOARD et al.,

Defendants and Respondents.

NATIONAL ASSOCIATION OF MANUFACTURERS,

Intervener and Appellant;

ENVIRONMENTAL DEFENSE FUND et al.;

Interveners and Respondents.

C075930

(Super. Ct. Nos. 34-2012-80001313-CU-WM-GDS)

MORNING STAR PACKING COMPANY et al., Plaintiffs and Appellants, v. STATE AIR RESOURCES BOARD et al., Defendants and Respondents; ENVIRONMENTAL DEFENSE FUND et al.; Interveners and Respondents.	C075954 (Super. Ct. Nos. 34-2013-80001464-CU-WM-GDS)

APPEAL from a judgment of the Superior Court of Sacramento County, Timothy M. Frawley, Judge. Affirmed.

Nielsen Merksamer Parrinello Gross & Leoni, James R. Parrinello, Steven A. Merksamer, Kurt R. Oneto, Christopher E. Skinnell and Eric J. Miethke for Plaintiffs and Appellants California Chamber of Commerce and Larry Dicke.

Sidley Austin, Sean A. Commons, Roger R. Martella, Jr., Paul J. Zidlicky and Eric D. McArthur for Plaintiff and Appellant The National Association of Manufacturers.

Pacific Legal Foundation, James S. Burling, Theodore Hadzi-Antich, Harold E. Johnson and Anthony L. François for Plaintiffs and Appellants Morning Star Packing Company, Dalton Trucking, Inc., California Construction Trucking Association, Merit Oil Company, Ron Cinquini Farming, Construction Industry Air Quality Coalition, Robinson Enterprises, Inc., Loggers Association of Northern California, Inc., Norman R. "Skip" Brown, Joanne Browne, Robert McClernon and the National Tax Limitation Committee.

National Federation of Independent Business Small Business Legal Center and Luke A. Walke; Benbrook Law Group, Bradley A. Benbrook and Stephen M. Duvernay for National Federation of Independent Business Small Business Legal Center, Owner-Operated Independent Drivers Association, Inc., and Associated California Loggers, as Amici Curiae on behalf of Plaintiffs and Appellants.

Pillsbury Winthrop Shaw Pittman, Kevin M. Fong, Jeffrey M. Vesely and Richards E. Nielsen for California Taxpayers Association, as Amicus Curiae on behalf of Appellants.

Alston & Bird, Maureen F. Gorsen and Damien M. Schiff for California Manufacturers and Technology Association, as Amicus Curiae on behalf of Appellants.

Kamala D. Harris and Xavier Becerra, Attorneys General, Robert W. Byrne, Senior Assistant Attorney General, Gavin G. McCabe, Molly K. Mosley, Deputy Attorney General, David A. Zonana, Robert E. Asperger, M. Elaine Meckenstock, and Bryant B. Cannon, Deputy Attorneys General, for Defendants and Respondents California Air Resources Board; Mary Nichols, in her official capacity as Chair of the California Air Resources Board; John Balmes, M.D., Sandra Berg, John Gioia, Hector De La Torre, John Eisenhut, Judy Mitchell, Barbara Riordan, Ron Roberts, Phil Serna, Alexander Sherriffs, M.D., and Daniel Sperling, in their official capacities as members of the California Air Resources Board; and Richard W. Corey, in his official Capacity as Executive Officer of the California Air Resources Board.

Shute, Mihaly & Weinberger, Matthew D. Zinn and Catherine Malina for Interveners and Respondents Environmental Defense Fund and Natural Resources Defense Council.

Environmental Defense Fund, Erica Morehouse Martin and Timothy J. O'Connor; Donahue & Goldberg and Sean H. Donahue for Intervener and Respondent Environmental Defense Fund.

Natural Resources Defense Council, David Pettit and Alexander L. Jackson for Intervener and Respondent Natural Resources Defense Council.

UC Berkeley School of Law and Eric Biber for Dr. Dallas Burtraw and 16 other economics and public policy scholars, as Amici Curiae on behalf of Respondents.

Frank G. Wells Environmental Law Clinic, UCLA School of Law and Cara A. Horowitz for The Nature Conservancy, as Amicus Curiae on behalf of Respondents.

Beveridge & Diamond and Nicholas W. van Aelstyn for International Emissions Trading Association, as Amicus Curiae on behalf of Respondents.

These two consolidated cases involve the California Global Warming Solutions Act of 2006 (the Act) (Health & Saf. Code, § 38500 et seq.; Stats. 2006, ch. 488; § 1, p. 3419, enacting Assem. Bill No. 32 (2005-2006 Reg. Sess.), popularly known as "AB

32").[1] The Act was passed by a simple majority vote of both legislative houses. Its general purpose is to reduce greenhouse gas (GHG) emissions to protect the environment.

Plaintiffs and allied amici curiae do not quarrel with the Act or its goals, but attack one part of the implementing regulations adopted by the State Air Resources Board (Board). (§ 39003.) The Board created a "cap-and-trade" program that includes the auction sale of some--but not all--GHG emissions allowances. Covered entities--generally large emitters of GHGs--must either surrender sufficient compliance instruments (emissions allowances or offset credits) to cover the amount of pollutants they discharge, or face monetary penalties or other negative consequences. (See § 38580; Cal. Code Regs., tit. 17, §§ 96012-96014.) The Board distributes some emissions allowances for free, but sells others at quarterly auctions. A covered entity that cannot reduce its emissions below the amount authorized by its free allowances and any offset credits it has obtained must purchase more allowances at the Board's quarterly auctions, or on a secondary market where allowances are sold or traded without Board control.

As in the trial court, on appeal plaintiffs assert (1) the auction sales exceed the Legislature's delegation of authority to the Board to design a market-based emissions reduction system, and (2) the revenue generated by the auction sales amounts to a tax that violates the two-thirds supermajority vote requirement of Proposition 13. (Cal. Const., art. XIII A, § 3.) The trial court rejected these two claims in a thorough written decision.

As for the first question, we hold that the Legislature gave broad discretion to the Board to design a distribution system, and a system including the auction of some allowances did not exceed the scope of legislative delegation. Further, the Legislature later ratified the auction system by specifying how to use the proceeds derived therefrom.

As for the second question, although our reasoning differs from that of the trial court, we agree that the auction sales do not equate to a tax. As we shall explain, the

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[1] Further undesignated statutory references are to the Health and Safety Code.

hallmarks of a tax are: 1) that it is compulsory; and 2) that the payor receives nothing of particular value for payment of the tax, that is, the payor receives nothing of specific value for the tax *itself*. Contrary to plaintiffs' view, the purchase of allowances is a voluntary decision driven by business judgments as to whether it is more beneficial to the company to make the purchase than to reduce emissions. Reducing emissions reduces air pollution, and no entity has a vested right to pollute. Further, once purchased, either from the Board or the secondary market, the allowances are valuable, tradable commodities, conferring on the holder the privilege to pollute. Indeed, speculators have bought allowances seeking to profit from their sale, and as one party puts it, taxes do not attract volunteers. These twin aspects of the auction system, voluntary participation and purchase of a specific thing of value, preclude a finding that the auction system has the hallmarks of a tax.

The bulk of the briefing in the trial court and on appeal discusses the test to determine whether a purported regulatory fee is instead a tax subject to Proposition 13. The key authority is *Sinclair Paint Co. v. State Bd. of Equalization* (1997) 15 Cal.4th 866 (*Sinclair Paint*) and its progeny. However, as we explain in more detail, *post*, the *Sinclair Paint* test is not applicable herein, because the auction system is unlike other governmental charges that may raise the "tax or fee" question resolved thereby. The system is the voluntary purchase of a valuable commodity and not a tax under any test.

Accordingly, we shall affirm the judgments denying the petitions in these consolidated cases.

BACKGROUND

In 2006 the Legislature passed and Governor Schwarzenegger signed the Act, which requires that covered entities reduce GHG emissions to 1990 levels by the year 2020. The Act did not pass by a two-thirds vote of each legislative house.

A decision by another appellate court summarized the Act as follows:

> "The [Act] is supported by legislative findings that global warming poses a 'serious threat' to the 'economic well-being, public health, natural resources, and the environment of California,' and that global warming will have 'detrimental effects on some of California's largest industries.' (§ 38501, subds. (a), (b).) . . .
>
> "The [Act] designates the Board as 'the state agency charged with monitoring and regulating sources of emissions of greenhouse gases that cause global warming in order to reduce emissions . . . .' (§ 38510.) In making this designation, the Legislature codified its intention that the Board 'design emissions reduction measures to meet the statewide emissions limits for greenhouse gases . . . in a manner that minimizes costs and maximizes benefits for California's economy, improves and modernizes California's energy infrastructure and maintains electric system reliability, maximizes additional environmental and economic co-benefits for California, and complements the state's efforts to improve air quality.' (§ 38501, subd. (h).)
>
> "The [Act] subjects the Board to several directives. Among other things, the Board is required to (1) adopt regulations for statewide reporting and monitoring of GHG emissions (§ 38530); (2) establish a statewide GHG emissions limit to be achieved by 2020 that is equivalent to the 1990 state GHG emissions level (§ 38550); (3) adopt rules and regulations to 'achieve the maximum technologically feasible and cost-effective greenhouse gas emission reductions . . . subject to the criteria and schedules' set forth in the act (§ 38560); and (4) adopt and implement a list of discrete early action GHG emission reduction measures (§ 38560.5)." (*Our Children's Earth Foundation v. State Air Resources Bd*. (2015) 234 Cal.App.4th 870, 874 (*Our Children's Earth*).)

The Board promulgated regulations that created a cap-and-trade system which included an auction component. (Cal. Code Regs., tit. 17, § 95801 et seq.; see *Association of Irritated Residents v. State Air Resources Bd.* (2012) 206 Cal.App.4th 1487, 1498, fn. 6 (*Residents*) [describing how a cap-and-trade system works generally].) Its purpose "is to reduce emissions of [GHG] associated with entities identified in this article through the establishment, administration, and enforcement of the California Greenhouse Gas Cap-and-Trade Program by applying an aggregate [GHG] allowance budget on covered entities and providing a trading mechanism for compliance instruments." (Cal. Code Regs., tit. 17, § 95801.) Covered entities must reduce their emissions below a threshold point, or obtain offset credits or emissions allowances, either

from the Board or the open market. The Board distributes some allowances for free, retains some in a price containment reserve to buffer against unexpectedly high auction prices, and auctions the rest periodically. After each compliance period, an entity must surrender unused allowances. But as the trial court found, allowances are tradable, which "creates a market for carbon allowances."[2] Covered entities include manufacturing, production, and utility operations that emit threshold amounts of GHGs. (See Cal. Code Regs., tit. 17, §§ 95811-95812.)

The regulatory system has been summarized briefly as follows:

> "[Effective] January 2012, the Board implemented the 'California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms' pursuant to its authority under the 2006 Act. (See Cal. Code Regs., tit. 17, §§ 95801-96022 [].) The purpose of this 'Cap-and-Trade' program regulation is 'to reduce emissions of greenhouse gases' from sources covered by the program 'by applying an aggregate greenhouse gas allowance budget on covered entities and providing a trading mechanism for compliance instruments.' (Cal. Code Regs., tit. 17, § 95801.) Entities covered . . . are from a broad spectrum of industries, including electricity, natural gas and fuel suppliers, each of whom has previously reported GHG emissions that exceed a threshold established by the Board . . . .
>
> "The program imposes a 'cap' on the aggregate GHG emissions these covered entities may emit during the annual compliance period. (Cal. Code Regs., tit. 17, §§ 95801, 95802, subd. (a)(53).) The Board enforces the cap, which is lowered over time, by issuing a limited number of . . . 'allowances,' the total value of which is equal to the amount of the cap. (*Id*., § 95820.) Each allowance represents a limited authorization to emit up to one metric ton of carbon dioxide equivalent of greenhouse gases (CO_2e), subject to stated restrictions. (*Ibid*.) Covered entities demonstrate compliance with the program by the timely surrender of allowances which correspond to that entity's compliance obligation during the relevant compliance period which is calculated pursuant to a formula set forth in the program regulation. (*Id*., §§ 95854-95856.) Subject to restrictions and limitations, allowances are tradable, which means that individual participants can

[2] Although regulations state that the allowances confer no property rights (Cal. Code Regs., tit. 17, §§ 95802, subd. (a)(299); 95820, subd. (c)), the trial court correctly found they are valuable commodities, a point we explain below (see Part II.C.4., *post*).

buy, bank or sell allowances which are used by the covered entities to satisfy their compliance obligations. (*Id*., §§ 95920-95923, 95856.)

"A covered entity can also use offsets to meet a percentage of its compliance obligation under the program. [Citations.] An offset is a voluntary . . . reduction from a source that is not directly covered by the Cap-and-Trade program which is used by a covered entity to comply with the program's GHG emissions cap." (*Our Children's Earth*, *supra*, 234 Cal.App.4th at pp. 876-877.)

"In crafting these regulations, the Board was required to follow nine statutory guidelines, 'to the extent feasible and in furtherance of achieving the statewide greenhouse gas emissions limit . . . .' (§ 38562, subd. (b).) These guidelines directed the Board to attempt to minimize costs, maximize the total benefits to California, encourage early action to reduce GHG emissions, avoid disproportionate impact on low-income communities, award appropriate credit for early voluntary reductions, complement existing federal and state standards, consider cost-effectiveness, consider overall societal benefits, minimize administrative burdens of implementation and compliance, minimize leakage (*id*., subd. (b)(1)-(8)), and '[c]onsider the significance of the contribution of each source or category of sources to statewide emissions of greenhouse gases' (*id*., subd. (b)(9)).

"The Legislature expressly authorized the Board to adopt regulations which establish market-based compliance mechanisms 'in furtherance of achieving the statewide [GHG] emissions limit.' (§ 38562, subd. (b); see § 38570, subd. (a) [].) The act defines a market-based compliance mechanism as 'either of the following: [¶] (1) A system of market-based declining annual aggregate emissions limitations for sources or categories of sources that emit greenhouse gases. [¶] (2) Greenhouse gas emissions exchanges, banking, credits, and other transactions, governed by rules and protocols established by the state board, that result in the same greenhouse gas emission reduction, over the same time period, as direct compliance with a greenhouse gas emission limit or emission reduction measure adopted by the state board pursuant to this division.' (§ 38505, subd. (k).)" (*Our Children's Earth*, *supra*, 234 Cal.App.4th at p. 875.)

Over time, the number of allowances (the "cap") will decrease--to reduce the total GHG emissions--which in theory should increase the value of remaining allowances. The auctions are expected to generate a great deal of money over the life of the program. By 2020, the Board plans to auction about half of the total allowances. The Board, citing materials in its unopposed request for judicial notice, asserts (without dispute by any

party) that as of January 1, 2015, about 500 million allowances have been distributed for free, about 75 million have been auctioned, and that the price containment reserve has not been tapped.[3]

At auction, there is a single round of sealed bidding, and winning bidders pay the "settlement" or "clearing" price, that is, the *lowest* price that will clear all allowances in that tranche. (See Cal. Code Regs., tit. 17, § 95911, subds. (a), (e).) Thus, some bidders will pay less than they were willing to pay. First by regulation and now by statute, the proceeds are kept in a fund to further the Act's purposes.[4] (*Id*., § 95870, subd. (b)(3); see Gov. Code, § 16428.8.)

In 2012 the Legislature passed four bills specifying how auction proceeds would be used to effectuate the Act, and diverting $500 million to the General Fund for related purposes. None passed by a two-thirds vote of each house.[5]

The first suit was then filed by the California Chamber of Commerce and taxpayer Larry Dicke (jointly, CalChamber) against the Board, its members, and its executive

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[3] We grant all pending requests for judicial notice, except as to items A and B of the Board's supplemental request, jointly opposed by plaintiffs, as those items consist of federal documents neither presented to the trial court (see *Brosterhous v. State Bar* (1995) 12 Cal.4th 315, 325-326) nor considered by the Board during the rule-making process; nor are they properly responsive to our supplemental briefing order.

[4] Intervener National Association of Manufacturers (NAM) correctly points out that a Board regulation cannot restrain the Legislature, nor can one Legislature bind the hands of a future one (see *In re Collie* (1952) 38 Cal.2d 396, 398), therefore another Legislature might attempt to change current limits on the use of auction proceeds.

[5] See Statutes 2012, chapter 39, section 25 (Sen. Bill No. 1018); Statutes 2012, chapter 807 (Assem. Bill No. 1532); Statutes 2012, chapter 830 (Sen. Bill No. 535); and Statutes 2012, chapter 21, section 15.11 (Assem. Bill No. 1464, California's Budget Act of 2012). Contrary to Morning Star's repeated assertions, under the Budget Act of 2012, the $500 million diversion could *not* be used for general revenue purposes, but instead was made "available to support the regulatory purposes of" the Act. (See Stats. 2012, ch. 21, § 15.11.)

officer, seeking to invalidate the auctions. The Environmental Defense Fund and Natural Resources Defense Council (jointly, EDF) intervened on behalf of the Board, and NAM intervened against the Board. In a second suit, Morning Star Packing Company (Morning Star) and other entities sued the same defendants, attacking the same regulations on essentially the same grounds.[6]

The trial court deemed the two cases to be related, heard a joint oral argument, and issued a joint written decision rejecting the petitions.

Plaintiffs timely appealed in each case, and we accepted a stipulation by the parties to consolidate the appeals.[7]

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[6] The other parties to Morning Star's petition are Dalton Trucking, Inc.; California Construction Trucking Association; Merit Oil Company; Ron Cinquini Farming; Construction Industry Air Quality Coalition; Robinson Enterprises, Inc.; Loggers Association of Northern California, Inc.; Norman R. "Skip" Brown; Joanne Browne; Robert McClernon; and the National Tax Limitation Committee.

[7] We have received substantial amicus curiae briefing as follows: (1) The California Taxpayers Association (CalTax); (2) the California Manufacturers and Technology Association (CMTA); and (3) the National Federation of Independent Business Small Business Legal Center, Owner-Operated Independent Drivers Association, Inc., and Associated California Loggers (NFIB), on behalf of plaintiffs; and (4) Dr. Dallas Burtraw and 16 other economics and public policy scholars, assisted by students from the UC Berkeley School of Law Environmental Law Practice Project (Burtraw); and (5) The Nature Conservancy, assisted, inter alia, by students from the UCLA Frank G. Wells Environmental Law Clinic, on behalf of the Board and EDF. In response to a supplemental briefing order, we received an amicus brief by the International Emissions Trading Association (IETA), in part representing offset credit developers and major power producers including Pacific Gas & Electric Co., the Sacramento Municipal Utility District, and Southern California Edison Co.; IETA's brief supports the Board's regulations as against the Proposition 13 challenge.

DISCUSSION

I

Legislative Delegation

The first question resolved by the trial court was whether the Legislature vested the Board with discretion to create a distribution system that included an auction. We agree with the trial court that the Legislature conferred on the Board extremely broad discretion to craft a distribution system, and the fact the Legislature did not explicitly refer to an auction of allowances does not mean such an auction falls outside the scope of the delegation. Moreover, by later specifying how the proceeds of the auctions would be used, the Legislature effectively ratified the auction system created by the Board.

A. *Standard of Review*

We have set out the general standard for determining the validity of administrative regulations in a prior case as follows:

> " 'Government Code section 11342.2 provides the general standard of review for determining the validity of administrative regulations. That section states that "[w]henever by the express or implied terms of any statute a state agency has authority to adopt regulations to implement, interpret, make specific or otherwise carry out the provisions of the statute, no regulation adopted is valid or effective unless [1] consistent and not in conflict with the statute and [2] reasonably necessary to effectuate the purpose of the statute."
>
> " 'Under the first prong of this standard, the judiciary independently reviews the administrative regulation for consistency with controlling law. . . . In short, the question is whether the regulation is within the scope of the authority conferred; if it is not, it is void. This is a question particularly suited for the judiciary as the final arbiter of the law, and does not invade the technical expertise of the agency.'

> " 'By contrast, the second prong of this standard, reasonable necessity, generally does implicate the agency's expertise; therefore, it receives a much more deferential standard of review. The question is whether the agency's action was arbitrary, capricious, or without reasonable or rational basis.' " (*Morning Star Co. v. Board of Equalization* (2011) 201 Cal.App.4th 737, 744-745 (*Morning Star*).)

In reviewing the regulations in this case, "We keep in mind that 'the burden is on the party challenging a regulation to show its invalidity.' " (*California School Bds. Assn. v. State Bd. of Education* (2010) 191 Cal.App.4th 530, 544 (*California School Bds.*); see *Association of California Ins. Companies v. Jones* (2017) 2 Cal.5th 376, 389 (*Jones*).)

B. *The Act is Broad Enough to Encompass an Emissions Allowance Auction*

The Board contends authorization to "[d]esign the regulations, including distribution of emissions allowances where appropriate," as well as authority to "adopt . . . a system of market-based declining annual aggregate emission limits," subject to specified criteria, vested it with authority to sell some allowances at auction. (§ 38562, subds. (b)(1)-(9), (c), 7 (d)-(f).) For the Board to prevail, we need only find that the auction regulations are " 'consistent and not in conflict with' " the organic statute (*Morning Star*, *supra*, 201 Cal.App.4th at p. 747); they are.

Plaintiffs emphasize that any *implied* administrative powers must be " 'essential to the declared objects and purposes of the enabling act--not simply convenient, but indispensable. Any reasonable doubt concerning the existence of the power is to be resolved against the agency.' " (*Addison v. Department of Motor Vehicles* (1977) 69 Cal.App.3d 486, 498, quoting former 2 Cal.Jur.3d, Administrative Law, § 39, pp. 257-258 [now 2 Cal.Jur.3d (2015) Administrative Law, § 175, pp. 222-223].) But here, there is an *explicit* delegation to the Board to design a method to distribute allowances. When an agency exercises discretion explicitly conferred on it, it is presumed to act within legislative intent. An "agency is not limited to the exact provisions of a statute in adopting regulations to enforce its mandate. '[The] absence of any specific [statutory] provisions regarding the regulation of [an issue] does not mean that such a regulation

exceeds statutory authority . . . .' [Citations.] [An agency] is authorized to ' "fill up the details" ' of the statutory scheme." (*Ford Dealers Assn. v. Department of Motor Vehicles* (1982) 32 Cal.3d 347, 362; see *California School Bds.*, *supra*, 191 Cal.App.4th at p. 544.)

NFIB contends an auction is not "reasonably necessary" to the Act's purposes and, somewhat similarly, CMTA argues the Board did not properly balance the relevant statutory factors. The Board aptly replies that such "argument conflates two distinct parts of the analysis of quasi-legislative rulemaking: the question of 'authority'—which the court reviews independently, giving weight to the agency's construction—and the question of 'reasonable necessity'—which the court reviews with great deference to the agency." (See also *Jones, supra*, 2 Cal.5th at pp. 396-397.) It was rational for the Board to include an auction component in the regulations, given the broad statutory delegation. We may not "superimpose [our] own policy judgment upon the agency in the absence of an arbitrary and capricious decision." (*Pitts v. Perluss* (1962) 58 Cal.2d 824, 832; see *Western States Petroleum Assn. v. State Dept. of Health Services* (2002) 99 Cal.App.4th 999, 1007 ["the existence and weight to be accorded the facts and policy considerations that support the regulation" fall within agency's bailiwick]; see also *Jones* at p. 390.)[8]

Plaintiffs launch a number of challenges to the conclusion that the legislature gave the Board sufficient discretion to adopt an auction component if it adopted a cap-and-trade program. The trial court summarized plaintiffs' arguments as follows:

> "Petitioners do not dispute that the cap-and-trade program requires emission allowances to be distributed in some manner. However, Petitioners argue that the text, structure, and legislative history of AB 32 show that the Legislature did not intend to authorize the sale of allowances. According to Petitioners, [the Board's] discretion is limited to choosing a method for distributing the allowances free of charge (or at least in a 'revenue-neutral'

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8 The fact the Legislative Analyst opined that an allowance auction was not necessary to meet the Act's goal is not dispositive. It is the Board's opinion that counts, and even if an auction were not *strictly* necessary, the Board could find it was more effective and therefore *reasonably* necessary, a finding well within its legal purview.

manner). Petitioners raise the following arguments in support of their position: (1) the statute does not explicitly authorize [the Board] to auction allowances; (2) the legislative history includes no discussion of the term 'auction;' (3) at the time of AB 32's enactment, most cap-and-trade program allowances were distributed for free; (4) construing AB 32 as authorizing the sale of allowances renders the administrative fee provision of the Act ([§] 38597) surplusage; (5) the chief sponsor of AB 32 (ostensibly) assured his colleagues on the floor of the Legislature, just before the vote, that the only funds to be generated under AB 32 were those generated by the administrative fee provision; (6) there is no guidance in AB 32 as to how to spend any auction revenues; and (7) the Legislature failed to enact a bill in 2009 that would have expressly authorized [the Board] to auction the allowances."

Because the briefing on appeal largely replicates these seven points, for convenience we will discuss them in the order assigned by the trial court. We then address an eighth point briefed on appeal, regarding the doctrine of constitutional doubt.

1. *No Explicit Authorization*

Contrary to the view posited by plaintiffs, there was no requirement that the Legislature explicitly authorize or even discuss emissions auctions in the Act in order for the Board to adopt regulations calling for such auctions.

The Act is a mere 12 pages long (see Stats. 2006, ch. 488, § 1, pp. 3419-3431), and it broadly sets forth its goals. The Legislature obviously intended the program to be a creature of the Board, either in deference to the Board's expertise, or out of pragmatic necessity to secure passage, or for both reasons. From the generality of the Act, it is clear that the Board " 'has been granted considerable discretion to determine what is necessary to accomplish' " (*Residents*, *supra*, 206 Cal.App.4th at p. 1495; see *Jones, supra*, 2 Cal.5th at pp. 390-391) the Legislature's goals. As another court observed, the breadth of legislative delegation was generous in this case:

"The Board is directed to 'consult with all state agencies with jurisdiction over sources of greenhouse gases' and to receive public input, to 'consider all relevant information pertaining to greenhouse gas emissions reduction programs' in other jurisdictions, to 'evaluate the total potential costs and total potential economic and noneconomic benefits of the plan . . . to California's economy, environment, and public health, using the best available economic models,

> emission estimation techniques, and other scientific methods' and, ultimately, to 'identify and make recommendations on direct emission reduction measures, alternative compliance mechanism[s], market-based compliance mechanisms, and potential monetary and nonmonetary incentives for sources and categories of sources *that the [Board] finds are necessary and desirable* to facilitate the achievement of the maximum feasible and cost-effective reductions of greenhouse gas emissions by 2020.' *These directives are exceptionally broad and open-ended*. They leave virtually all decisions to the discretion of the Board, from determining the nature of a scoping plan, to determining the best available research techniques, to determining incentives for emissions reduction that are 'necessary and desirable,' to weighing economic, environmental and public health benefits, to determining what is most 'feasible and cost-effective.' " (*Residents*, *supra*, 206 Cal.App.4th at p. 1495, citations omitted, first italics in orig., second italics added; see *Our Children's Earth*, *supra*, 234 Cal.App.4th at p. 888.)

In particular, "In adopting regulations . . . , to the extent feasible and in furtherance of achieving the statewide greenhouse gas emissions limit, the state board shall do all of the following: [¶] (1) *Design the regulations, including distribution of emissions allowances where appropriate*, in a manner that is equitable, seeks to minimize costs and maximize the total benefits to California, and encourages early action to reduce greenhouse gas emissions." (§ 38562, subd. (b), italics added.)[9]

The statute allowing the Board to design regulations that include "distribution of emissions allowances" (§ 38562, subd. (b)) gave the Board great flexibility. Plaintiffs' assertions that this statute does not permit an auction system are unconvincing.[10]

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[9] The Board followed eight other commands in crafting regulations, including to "minimize leakage" (§ 38562, subd. (b)(8)), which is a reduction of in-state emissions "offset by an increase . . . outside the state." (§ 38505, subd. (j).) Leakage includes businesses choosing to leave California rather than comply with the regulations. The regulations classify industrial sectors by risk of leakage, and adjust the amount of free allowances accordingly. (See Cal. Code Regs., tit. 17, § 95870.)

[10] Although we have granted CalChamber's unopposed request for judicial notice, tendering dictionary definitions of "distribution," we find no serious ambiguity in the term as used herein. (Cf. *Miller Brewing Co. v. Department of Alcoholic Beverage Control* (1988) 204 Cal.App.3d 5, 12-15 [finding ambiguity in "distribution" as used in the context of liquor marketing, and giving it the broadest meaning]; *California Mfrs.*

The petitions do not dispute that the Act permitted the Board to adopt a cap-and-trade system, as opposed to, for example, a more traditional regulatory enforcement system sometimes referred to as a "command-and-control" system. But once such a system was chosen, the Board had to decide who would capture the value of distributed allowances, the covered entities or the state. As the trial court explained, "Allowances can be allocated free of charge, sold by the regulating authority through an auction or direct sale, or allocated by some combination of these methods. If covered entities receive the allowances free of charge, they capture the value associated with the allowances. If allowances are sold or auctioned, the government captures the value created by the cap. Whatever the allocation, whoever receives the initial allocation of allowances will receive a 'windfall' equal to the value created by the constraint."[11] (Fn. omitted.)

The Legislature presumably knew that if the Board chose a cap-and-trade system, *some* entity would capture the constraint value, but did not specify the recipient. As Burtraw points out, the idea of auctioning some or all cap-and-trade allowances long had been debated by scholars. (See McAllister, *The Overallocation Problem in Cap-And-Trade: Moving toward Stringency* (2009) 34 Colum. J. Envtl. L. 395, 441-442; Stavins, *A Meaningful U.S. Cap-And-Trade System to Address Climate Change* (2008) 32 Harv. Envtl. L. Rev. 293, 395; Ackerman & Stewart, *Reforming Environmental Law* (1985) 37 Stan. L. Rev. 1333, 1343.)

Assn. v. Public Utilities Com. (1979) 24 Cal.3d 836, 843-848 [similar holding].) We need not address whether distribution of allowances has a technical meaning as discussed in the briefs.

[11] The Board was concerned windfalls could pass to entities contrary to the public good, as had happened "during the first phase of the European Union Emissions Trading Scheme. . . . Researchers emphasize that windfalls occurred because facilities were awarded free allowances and yet still passed opportunity costs through to consumers." Amici curiae Burtraw and The Nature Conservancy emphasize and elaborate on these economic fairness concerns.

Further, as the trial court observed, "Petitioners admit that at least two well-known cap-and-trade programs preceding the adoption of AB 32 [the federal 1990 Clean Air Act and the European Union's Emission Trading System] authorized allowances to be sold or auctioned. [Citation.] Similarly, the U.S. EPA's 2003 guide [Tools of the Trade: A Guide to Designing and Operating a Cap and Trade Program for Pollution Control] states that the first major step . . . is to decide whether allowances will be allocated at no cost or" auctioned. The Act requires the Board to "consider all relevant information pertaining to [GHG] emissions reduction programs in other states, localities, and nations, including the northeastern states of the United States, Canada, and the European Union." (§ 38561, subd. (c).)[12] Tellingly, the trial court also found as follows:

> "In . . . March of 2006, five months before AB 32 was enacted, the State of California's Climate Action Team submitted a report to the Governor *and the Legislature* noting that in a 'market-based program' for reducing GHG emissions, '[e]mission allowances can be auctioned (i.e., sold) or given away.' [Citations.] It is therefore reasonable to assume that the Legislature understood the phrase 'distribution of emissions allowances' to potentially encompass both giving away allowances and selling them via an auction or direct sale. It follows that, having broadly delegated the choice of distribution methods to [the Board], if the Legislature had meant to exclude the sale of allowances, it would have said so." (Italics added.)

We agree. The Act itself references the Climate Action Team. (See § 38501, subd. (i).) The team's report--provided to the Legislature *before* the Act was passed--explains that "[w]hen allowances are given to entities covered by the cap, those entities receive something of value: the emission allowances. When the allowances are auctioned, the government collects a portion of the value of the allowances in the amounts paid in the auction." It also explains a hybrid approach, where some allowances

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[12] It is true, as CalChamber points out, that the EPA guide also states existing programs allocated free allowances. That does not change the fact that the Legislature knew a choice would have to be made about whether or not to auction allowances, if the Board decided to adopt a cap-and-trade program.

are sold and some are auctioned, the model ultimately adopted by the Board. Thus, the Legislature knew that an auction was a *possible* component of a cap-and-trade program. If the Legislature had wanted to direct who would receive the constraint value *if* the Board chose a cap-and-trade system, it was free to do so, but did not. Thus, it seems clear that the Legislature meant for the Board to decide whether to create a cap-and-trade system including an auction for some emissions allowances.[13]

2. *Lack of Discussion in the Legislative Record*

Plaintiffs assert that the power to create a program generating billions of dollars in revenue would not have been delegated to an agency without explicit discussion, and no such discussion appears in the legislative record. (See *In re Christian S.* (1994) 7 Cal.4th 768, 782 ["We are not persuaded the Legislature would have silently, or at best obscurely, decided so important and controversial a public policy matter"]; *Ailanto Properties, Inc. v. City of Half Moon Bay* (2006) 142 Cal.App.4th 572, 589 ["The Legislature 'does not, one might say, hide elephants in mouseholes' "]; *FDA v. Brown & Williamson Tobacco Corp.* (2000) 529 U.S. 120, 160 [146 L.Ed.2d 121, 151] ["we are confident that Congress could not have intended to delegate a decision of such economic

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[13] NAM and CalChamber argue such a broad delegation--if intended--would be unlawful, but fail to provide coherent analysis or separately head the point, which therefore is forfeited. (See *In re S.C.* (2006) 138 Cal.App.4th 396, 408.) Moreover, there was no abdication of legislative power, because the Act sets the boundaries of the Board's discretion, and the policy goals. (See *Hess Collection Winery v. Agricultural Labor Relations Bd.* (2006) 140 Cal.App.4th 1584, 1604-1605.)

We note that taxes must be levied by the legislative, not executive, branch. (See Hilliard, Law of Taxation (1875) § 1, p. 1; 1 Cooley, Law of Taxation (3d ed. 1903) Nature of the Power to Tax, p. 43 (Cooley).) Nor can the legislature delegate the power to tax to an administrative board, although a board can value property and collect taxes. (See 71 Am.Jur.2d (2001) State and Local Taxation, § 107, pp. 393-394.) Here, because we find no tax (see Part II, *post*), we need not consider whether, *if* the revenue generated by the auction sales were a tax, it could have been created by the Board and then ratified by the Legislature. (See Part I.C.1., *post*.)

and political significance to an agency in so cryptic a fashion"].) Plaintiffs' point is that the statutory authority to create a "distribution" system could not encompass a multi-billion dollar administratively created program. NAM adds that the dearth of explicit discussion "is particularly stark because" of the Legislature's unique role in collecting and distributing state revenue. (See *In re Attorney Discipline System* (1998) 19 Cal.4th 582, 595 [" 'the power to collect and appropriate the revenue of the State is one peculiarly within the discretion of the Legislature' "].)

We disagree that the lack of discussion of an auction means the Legislature precluded its adoption by the Board. First, "[t]he depth of the debate is the domain of the Legislature." (*In re Christian S.*, *supra*, 7 Cal.4th at p. 782.) Legislative silence on an issue, or failure to anticipate all ramifications of a bill, does not change the scope of the statutory language. As stated in the context of interpretation of a purportedly ambiguous statute, " ' "[T]hat a statute can be applied in situations not expressly anticipated . . . does not demonstrate ambiguity. It demonstrates breadth." ' " (*Estate of Earley* (2009) 173 Cal.App.4th 369, 376.) As we have discussed (see Part I.B.1., *ante*), the Act is worded broadly enough so as to encompass an administratively created auction, which was foreseeable based on material available to the Legislature.

Second, the Act reflects the Legislature's desire for a massive, historic, and immediate change in behavior regarding GHG emissions. The Legislature could have spent many years considering, analyzing, and dictating the best way to achieve its ambitious goals. But that delay itself would have impeded the goals. Instead, the Legislature chose to pass a flexible bill, with the understanding that the Board, as the agency with expertise in air quality matters, was better equipped to study the problem and design a program to effectuate those goals. (See *Jones, supra*, 2 Cal.5th at p. 390.) Viewed in this light, the lack of explicit legislative discussion of one sub-component of one *possible* emissions reduction system (that is, adoption of a cap-and-trade program rather than a command-and-control program) is of no moment.

3. *Structure of Other Cap-and-Trade Programs*

Plaintiffs contend that other cap-and-trade programs distribute all allowances for free, or are revenue-neutral, or arose with explicit legislative authorization for auctions. We accept these asserted facts as true.

But the fact that other methods of distribution were possible is not compelling, or even noteworthy. As the trial court pointed out, our Legislature did not mandate a cap-and-trade program, therefore it had no need to detail the minutiae of such a program. While the Legislature knew how other jurisdictions tackled GHG emissions problems, it was not compelled to follow in lock-step. Neither was the Board.

4. *Administrative Fee Provision*

Although the parties discuss at length an administrative fee provision in the Act, we find that provision irrelevant to the legislative delegation question.

The provision, section 38597, allows the Board to adopt "a schedule of fees to be paid by the sources of [GHG] emissions regulated pursuant to this division, consistent with Section 57001. The revenues collected . . . shall be deposited into the Air Pollution Control Fund and are available upon appropriation, by the Legislature, for purposes of carrying out this division." (Stats. 2006, ch. 488, § 1, p. 3430.) The cross-referenced statute, which applies to many fees, encourages "efficient and cost-effective operation of the programs" requiring such fees, and requires "that the amount of each fee is not more than is reasonably necessary to fund the efficient operation of the activities or programs for which the fee is assessed." (§ 57001, subd. (a).)

Plaintiffs contend that the existence of this fee provision precluded the Board from generating any other revenue under the Act by any other mechanism. We disagree.

Section 38597 is a pedestrian measure to pay for the costs of implementing the Act. (See Cal. Code Regs., tit. 17, §§ 95200-95207.) This fee has no bearing on the delegation question. As the trial court put it: "It only proves the Legislature intended to

ensure [the Board] could collect fees to pay for the administrative costs directly incurred in carrying out the provisions of [the Act]."

We do not see this as an appropriate usage of the adage *expressio unius est exclusio alterius*, as contended by some plaintiffs (see *People ex rel. Cranston v. Bonelli* (1971) 15 Cal.App.3d 129, 135 ["legislative enumeration of certain exceptions by necessary implication excludes all other exceptions"]), because the administrative fee does not speak in any way to the legislative delegation question, and because it is not an exception to a general statutory rule.

5. *Floor Debate and Related Statements*

Plaintiffs attempt to bolster their contention regarding the administrative fee provision just discussed by referencing floor statements made by the author of the Act, former Assembly Speaker Fabian Nuñez.[14] Speaker Nuñez assured legislators who expressed qualms about "an open checkbook" for the Board, and "an SUV tax" and the like, that "this bill" authorized only administrative fees to cover program costs. Plaintiffs read much into the Speaker's usage of the words "this bill" and construe it to mean that the Speaker was promising that no part of the Act would have any other fiscal impact regardless of how it was implemented. But the Speaker was referring to a market system in carbon credits before he made his assurance about program costs. Further--as explained in a February 9, 2012 Legislative Analyst report contained in the joint appendix--a carbon tax would not function like a cap-and-trade program with an auction component, and this report outlined alternatives the Legislature could choose if it disagreed with the Board's rulemaking decisions.[15] The Legislature did not disagree.

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[14] We have acknowledged that floor statements provide cognizable legislative history of a bill. (*Kaufman & Broad Communities, Inc. v. Performance Plastering, Inc*. (2005) 133 Cal.App.4th 26, 31-32 (*Kaufman*).)

[15] The Legislative Analyst's opinion, in part, was that a "cap-and-trade program differs from a carbon tax in that the cost of emitting each ton of CO_2e is not decided by the

The enrolled bill report prepared by the Board states: "*Fee Authority*. AB 32 grants [the Board] the authority to adopt a schedule of fees to be paid by regulated GHG emission sources for program administration. Republicans feel that the fee authority language provides [the Board] with carte blanche authority to collect fees on anything including imposing a tax on sport utility vehicles (SUV). To clear confusion, Speaker Nuñez added a letter to the file to clarify that the fee is limited to [the Board's] direct implementation costs only." The referenced letter by Speaker Nuñez referred only to the administrative fee provision, section 38597.

A later portion of the enrolled bill report, discussing expected fiscal impact, states in part: "While [the Board] has the authority to adopt a schedule of fees to be paid by regulated GHG emitters, two matters need to be resolved before this authority can be exercised. First, the Governor made a policy commitment not to impose additional costs on industry beyond their own costs of compliance. Second, collection mechanisms need to be created (i.e. through mandatory reporting regulations which [come] in 2008). Similarly, regulatory development activity needs to get off the ground before the universe of regulated facilities and the appropriate schedule of fees can be determined." But when this passage was drafted, it was not known whether or not the Board would create a cap-and-trade program at all, therefore the omission to discuss the then-hypothetical impact of auctioning allowances is understandable. Nor does the Governor's purported policy commitment change the Act.

CalChamber refers to the Governor's *proposed* signing statement, prepared by the Board. It provides in part: "I want to join the Speaker in assuring that any fees that may be collected from sources of global warming emissions will only be used to support the

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regulator. Rather, the cost is determined, in effect, by the emissions sources themselves through trading of emissions allowances."

essential and direct program costs associated with the bill." This, too, appears to be reference to the administrative fee provision.[16]

None of these statements individually, nor all of them in combination, speak to the Board's ability to adopt an auction component within its cap-and-trade program.

Further, as we explain in Part II, *post*, the auction sales are not "fees," they are the purchase price of a valuable commodity, an emissions allowance, therefore discussion of limiting fees in the legislative record is unpersuasive.

6. *Lack of Guidance for Disposing of Auction Proceeds*

In 2012 the Legislature passed four bills that specified how the auction proceeds would be used to effectuate the Act (see fn. 5, *ante*). In echo of their earlier argument, plaintiffs observe that the Act itself did not address the disposition of auction revenue. But there was no need for the Act to address the disposition of auction proceeds, because it was then unknown whether the Board would create a cap-and-trade program, rather than what the record calls a "command-and-control" program, that would have mandated emissions reductions by regulatory order. (See *Alliance of Small Emitters/Metals Industry v. South Coast Air Quality Management Dist*. (1997) 60 Cal.App.4th 55, 57-59 & fn. 1 [describing an early "command and control" program converted to a market-based cap-and-trade program, and making reference to the theoretical use of an auction system, although that program did not use an auction].)[17]

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[16] In addition to the proposed signing statement, the enrolled bill report also includes three different draft veto messages. Their inclusion shows that not all documents found in such reports are relevant or persuasive indications of legislative intent. (See *Jones, supra*, 2 Cal.5th at pp. 395-396; *Kaufman*, *supra*, 133 Cal.App.4th at pp. 40-42.)

[17] According to a Legislative Analyst report in the record, "Traditionally, California has relied upon *direct regulatory measures* to achieve emissions reductions and meet other environmental goals. Such regulations, commonly referred to as command-and-control measures, typically require specific actions on the part of emissions sources to achieve the desired emissions reductions or other goals. . . . In contrast, *market-based*

As we have said, that a bill has unknown or unanticipated consequences does not mean those consequences, when manifested, must be deemed to conflict with or exceed the scope of the legislation. (See *Estate of Earley*, *supra*, 173 Cal.App.4th at p. 376.)

7. *Unenacted 2009 Bill*

Morning Star points to the failure of Senate Bill No. 31, which would have explicitly authorized auctions, as evidence of legislative intent. (See Sen. Bill No. 31 (2009-2010 Reg. Sess.) § 2, as amended Jan. 25, 2010.) We have explained that "[t]he unpassed bills of later legislative sessions evoke conflicting inferences. Some legislators might propose them to replace an existing prohibition; others to clarify an existing permission. A third group of legislators might oppose them to preserve an existing prohibition, and a fourth because there was no need to clarify an existing permission. The light shed by such unadopted proposals is too dim to pierce statutory obscurities. As evidences of legislative intent they have little value." (*Sacramento Newspaper Guild v. Sacramento Board of Supervisors* (1968) 263 Cal.App.2d 41, 58; cited with approval by *Dyna-Med, Inc. v. Fair Employment & Housing Com.* (1987) 43 Cal.3d 1379, 1396.)

The limited circumstances under which an unenacted bill is relevant, such as where the Legislature has studied an issue or court ruling and thereafter declines to change the law or adopt a new proposal (see, e.g., *Western Land Office, Inc. v. Cervantes* (1985) 175 Cal.App.3d 724, 741; *Seibert v. Sears, Roebuck & Co*. (1975) 45 Cal.App.3d 1, 17-19), or passes a bill without a specific provision contained in a prior version of the bill (see, e.g., *People v. Hunt* (1999) 74 Cal.App.4th 939, 947-948), are not present here. Instead, as in the general run of cases, it may be said only that "the failure of the

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mechanisms provide economic incentives to achieve emissions reductions, without specifying how emissions sources are to achieve those reductions." Either way, the Legislature could have specified how the proceeds would be used *if* the Board adopted a cap-and-trade program. But it could also conclude such a specification might tilt the scale in favor of such a program, rather than ensuring the Board--the agency with expertise in the subject matter--had maximum flexibility, within legislative parameters.

Legislature to enact the proposed bill, in one form or another, is some evidence that the Legislature does not consider it necessary or proper or expedient to enact such legislation." (*Sterling v. City of Oakland* (1962) 208 Cal.App.2d 1, 6.)

Thus, we find that the proposed but unenacted 2009 bill does not assist plaintiffs.[18]

8. *Constitutional Doubt*

On appeal, plaintiffs raise an eighth point, namely, the "constitutional doubt" canon of construction. They argue that because there are doubts about whether the auction is constitutional--either because of the unlawful delegation claim or because of the tax argument (see Part II, *post*)--we should interpret the Act to preclude the auction. Our Supreme Court has described the application of the constitutional doubt canon as follows:

> " ' "If a statute is susceptible of two constructions, one of which will render it constitutional and the other unconstitutional in whole or in part, or raise serious and doubtful constitutional questions, the court will adopt the construction which, without doing violence to the reasonable meaning of the language used, will render it valid in its entirety, or free from doubt as to its constitutionality, even though the other construction is equally reasonable. [Citations.] The basis of this rule is the presumption that the Legislature intended, not to violate the Constitution, but to enact a valid statute within the scope of its constitutional powers." ' " (*Harrott v. County of Kings* (2001) 25 Cal.4th 1138, 1153.)

But the canon has a narrow application, as we have recently reemphasized:

> "The constitutional doubt canon applies if and only if the statute is '*realistically* susceptible of two interpretations and the interpretation to be rejected must raise *grave and doubtful* constitutional questions.' [Citation.] It 'is a tool for choosing between *competing plausible interpretations of a statutory text*, resting on the reasonable presumption that Congress [or, *mutatis mutandis*, the Legislature] did not intend the alternative which raises serious constitutional

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18 We note that the trial court found "a Senate Committee report on [Senate Bill No.] 31 reflects an understanding that [Assembly Bill No.] 32 already authorized auctions."

doubts.' " (*Siskiyou Farm Bureau Federation v. Department of Fish & Wildlife* (2015) 237 Cal.App.4th 411, 445 (*Siskiyou*).)

Under this standard, we find no basis to apply the interpretive canon herein, either as to the delegation question or the Proposition 13 question (see Part II, *post*). We have not been offered alternative, plausible, statutory interpretations from which to choose.[19]

9. *Conclusion as to Legislative Delegation*

For all of the above reasons, we agree with the trial court that plaintiffs have not carried their burden (see *California School Bds.*, *supra*, 191 Cal.App.4th at p. 544) to show the auction portion of the regulations exceeds the scope of legislative delegation.

C. *The 2012 Legislation*

The four bills passed in 2012 (see fn. 5, *ante*) show that whatever the collective intention of the 2006 Legislature, the 2012 Legislature affirmatively ratified the Board's auction system.

1. *Legislative Ratification*

We have held that "whatever the Legislature has power to authorize to be done it has power to ratify and confirm when done irregularly or not in the mode previously described." (*Rock Creek W. Dist. v. County of Calaveras* (1955) 133 Cal.App.2d 141, 146; see *Southern Cal. Gas Co. v. Public Utilities Com.* (1985) 38 Cal.3d 64, 67 [regulations authorized by subsequent legislation; "even if the Legislature cannot 'confirm' that such authority always existed . . . it may furnish the missing authority nunc pro tunc"].) Contrary to CalChamber's view, applying the ratification doctrine is not the same as using the acts of a later Legislature to illuminate a prior Legislature's intent. (See *Peralta Community College Dist. v. Fair Employment & Housing Com.* (1990) 52 Cal.3d 40, 52 ["The declaration of a later Legislature is of little weight in determining the

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19 Contrary to the Board's evident view, the constitutional *doubt* canon is distinct from the constitutional *avoidance* doctrine, whereby it is often deemed prudent to address a statutory or other ground to avoid reaching a constitutional ground. (See, e.g., *People v. McKay* (2002) 27 Cal.4th 601, 608, fn. 3.)

relevant intent of the Legislature that enacted the law"].) It instead treats later acts as curative of purported defects in prior acts.[20]

Thus, even were we to find that the Act did not authorize the regulations adopted by the Board, the Legislature surely ratified them in 2012 by directing how the money is spent. (See *Professional Engineers in California Government v. Schwarzenegger* (2010) 50 Cal.4th 989, 1000 [although the Governor, at the time he acted, lacked legislative authority to furlough state employees, "the Legislature's 2009 enactment of the revisions to the 2008 Budget Act operated to ratify the use of the two-day-a-month furlough program"]; see, also e.g., *Morning Star*, *supra*, 201 Cal.App.4th at p. 748 ["there is strong evidence the Legislature knows full well" about a regulatory interpretation "and the Legislature is fine with that interpretation. This is strong evidence" the regulation does not conflict with statutory law].) The legislative will to ratify the Board's auction system by passage of the 2012 statutes is clear, and we need not discuss it further.

2. *Proposition 26*

Morning Star--but not the other plaintiffs--contends that any reliance on the 2012 statutes to ratify the auction component of the regulations would be invalid under Proposition 26. We disagree.

Proposition 26 was passed by the People, in the exercise of their reserved initiative powers, in response to the perceived efforts of state and local governments to bypass the spirit of Proposition 13 and related measures, in particular by couching exactions as regulatory fees exempt from a supermajority vote. (See *Schmeer v. County of Los Angeles* (2013) 213 Cal.App.4th 1310, 1317-1326 (*Schmeer*); Voter Information Guide, Gen. Elect. (Nov. 2, 2010) text of proposed laws, Prop. 26, § 1, p. 114.)

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[20] Also contrary to CalChamber's apparent view, nothing in *Shaw v. People ex rel. Chiang* (2009) 175 Cal.App.4th 577 (*Shaw*) addresses ratification. Rather, the case involved legislative violation of spending strictures, an issue we address in Part II.C.6., *post*.

In part, Proposition 26 amended our constitution so that "Any change in state statute which results in any taxpayer paying a higher tax" is subject to the requirement that the change be passed by a two-thirds vote of each legislative house. (Cal. Const., art. XIII A, § 3, subd. (a).) Proposition 26 defines a tax as "any levy, charge, or exaction of any kind imposed by the State" with exceptions. (Cal. Const., art. XIII A, § 3, subd. (b).) In defending against a Proposition 26 challenge, "The State bears the burden of proving by a preponderance of the evidence that a levy, charge or other exaction is not a tax, that the amount is no more than necessary to cover the reasonable costs of the governmental activity, and that the manner in which those costs are allocated to a payor bear a fair or reasonable relationship to the payor's burdens on, or benefits received from, the governmental activity." (Cal. Const., art. XIII A, § 3, subd. (d).)

However, Proposition 26, passed in 2010, is not generally retrospective in operation. (See *Brooktrails Township Community Services Dist. v. Board of Supervisors of Mendocino County* (2013) 218 Cal.App.4th 195, 205-207.) Thus, it cannot affect the Act itself, passed in 2006, and no party--not even Morning Star--contends otherwise.

The arguable relevance is the language broadening the definition of a tax and changing the burden of proof. Morning Star contends that Proposition 26 bars the use of the 2012 legislation to ratify the auction regulations, because the Board has not proven the auction charges are not taxes *as defined by Proposition 26*.

But the 2012 legislation did not change the *cost* of allowances, whether purchased at auction or on the secondary market; it specified how the proceeds of auctions sales would be handled. Thus, no "state statute" was changed in any way that could possibly increase "any . . . charge . . . of any kind imposed by the State" as provided by Proposition 26. (See *Western States Petroleum Assn. v. Board of Equalization* (2013) 57 Cal.4th 401, 423-424 [regulation changing method of assessing certain property that resulted in a higher bill for some taxpayers was not a "state statute" within the meaning of Proposition 13]; *Southern California Edison Co. v. Public Utilities Com.* (2014) 227

Cal.App.4th 172, 198 ["Proposition 26 plainly defines a tax as a '*change in state statute* which results in . . . a higher tax' [citation], not [an agency's] decision" that resulted in a fee].)

Accordingly, Proposition 26 interposes no bar to using the 2012 statutes to evince a legislative ratification of the auction regulations adopted by the Board.[21] We thus must turn to the question of whether Proposition 13 poses an obstacle to the auction component of the Board's cap-and-trade program.

II

Whether the Auctions Sales Violate Proposition 13

The second question presented to the trial court by the plaintiffs was whether the auction system is a tax subject to Proposition 13. The trial court found this to be a close question in part because of the novelty of "the charges at issue," but ruled the system was more like a regulatory fee than a tax, applying principles derived from *Sinclair Paint* and related cases, while acknowledging no prior case precisely governed this case.

Although we disagree with its method of analysis, we agree with the trial court's ultimate conclusion that the auction system does not equate to a tax subject to Proposition 13. This is so for two interrelated reasons: First, the purchase of emissions allowances, whether directly from the Board at auction or on the secondary market, is a business-driven decision, not a governmentally compelled decision; second, unlike any other tax to which we have been referred by the parties, the purchase of an emissions allowance conveys a valuable property interest--the privilege to pollute California's air--that may be freely sold or traded on the secondary market. Thus, the trial court correctly identified the two facts we find make the auction system unlike a tax, (1) participation is voluntary, and (2) entities receive a thing of value in exchange for obtaining allowances.

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[21] We were not asked to decide whether an administrative or legislative attempt to extend the cap-and-trade rules promulgated under the Act beyond 2020 would be subject to Proposition 26's terms, and do not purport to do so.

We discuss the trial court's thoughtful decision in some detail. Its reasoning drives much of the parties' briefing and accurately outlines several relevant points.

A. *Standard of Review*

Under a *Sinclair Paint* analysis, "Whether [a statute] imposes a tax or fee [under Proposition 13] is a question of law decided upon an independent review of the record." (*California Farm Bureau Federation v. State Water Resources Control Bd.* (2011) 51 Cal.4th 421, 436 (*Farm Bureau*).) The challenger must "establish a prima facie case showing that the fee is invalid."[22] (*Ibid*.) Then the state must show the estimated costs of the service or regulatory activity and method of apportionment, to establish the " ' "charges allocated to a payor bear a fair or reasonable relationship to the payor's burdens on or benefits from the regulatory activity." ' " (*Id*. at pp. 436-437; see *Sinclair Paint*, *supra*, 15 Cal.4th at p. 878.) This allocation of burdens presupposes that *Sinclair Paint* applies to the charge; whether it applies is a purely legal question.

B. *Proposition 13 and the Trial Court's Ruling*

1. *Proposition 13 and its Aftermath*

The language of Proposition 13 most relevant to this case is as follows:

> "[A]ny changes *in State taxes* enacted for the purpose of increasing rates or changes in methods of computation must be imposed by an Act passed by not less than two-thirds of all members elected to each of the two houses of the Legislature." (Cal. Const., art. XIIIA, former § 3, italics added, added by initiative, Primary Elec. (June 6, 1978), popularly known as the "Jarvis-Gann initiative," see *Mills v. County of Trinity* (1980) 108 Cal.App.3d 656, 658 (*Mills*), and sometimes referred to as the "People's Initiative to Limit Property Taxation," see *Farm Bureau*, *supra*, 51 Cal.4th at p. 428, fn. 1.)[23]

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[22] In contrast, as mentioned earlier, Proposition 26 "shifted to the state or local government the burden of demonstrating that any charge, levy or assessment is not a tax." (*Schmeer, supra,* 213 Cal.App.4th at p. 1322.)

[23] This provision was amended by Proposition 26, discussed in Part I.C.2., *ante*.

Proposition 13 was designed to provide tax relief, but purported loopholes were found, leading to later initiative measures to limit the use of regulatory fees in lieu of taxes. (See *Schmeer*, *supra*, 213 Cal.App.4th at pp. 1317-1326 [discussing history of various subsequent measures].) *Sinclair Paint* set forth rules to evaluate purported regulatory fees to determine if they were in reality taxes subject to Proposition 13.

Sinclair Paint involved a program to remediate the effects of lead, funded by fees imposed on entities who contributed to lead contamination. (*Sinclair Paint*, *supra*, 15 Cal.4th at p. 872.) The court held the act "imposes bona fide regulatory fees. It requires manufacturers and other persons whose products have exposed children to lead contamination to bear a fair share of the cost of mitigating the adverse health effects their products created in the community. Viewed as a 'mitigating effects' measure, it is comparable in character to similar police power measures imposing fees to defray the actual or anticipated adverse effects of various business operations." (*Id*. at p. 877.)

"*Sinclair Paint* stated that regulatory fees that do not exceed the reasonable cost of providing the services for which the fees are charged and are not levied for any unrelated revenue purposes" were not subject to section 4 of Proposition 13, which defined "special taxes" and which the court viewed as bearing on the proper application of section 3 of Proposition 13, applicable to state taxes. (*Schmeer*, *supra*, 213 Cal.App.4th at pp. 1321-1322; see *Sinclair Paint*, *supra*, 15 Cal.4th at pp. 873-880.)

Acknowledging that the word "tax" has no fixed meaning (see *Mills, supra,* 108 Cal.App.3d at p. 660), *Sinclair Paint* found the lead paint fee should be analyzed as a regulatory fee imposed under the police power, which is not deemed a special tax provided that the fees (1) do not exceed the reasonable cost of accommodating the activity and (2) are not levied for unrelated revenue purposes. (*Sinclair Paint*, *supra*, 15 Cal.4th at pp. 875-876; see *California Building Industry Assn. v. San Joaquin Valley Air Pollution Control Dist.* (2009) 178 Cal.App.4th 120, 131 (*Building Industry*).)

Sinclair Paint left open the possibility the challenger could show either that the amount of fees "exceeded the reasonable cost of providing the protective services for which the fees were charged, or that the fees were levied for unrelated revenue purposes" or "that no clear nexus exists between its products and childhood lead poisoning, or that the amount of the fees bore no reasonable relationship to the social or economic 'burdens' its operations generated." (*Sinclair Paint*, *supra*, 15 Cal.4th at p. 881; see *California Assn. of Prof. Scientists v. Department of Fish & Game* (2000) 79 Cal.App.4th 935, 945 (*Scientists*) [state must show "(1) the estimated costs of the service or regulatory activity, and (2) the basis for determining the manner in which the costs are apportioned, so that charges allocated to a payor bear a fair or reasonable relationship to the payor's burdens on or benefits from the regulatory activity"].)

2. *The Trial Court's Ruling*

The trial court correctly observed that, generally, taxes are compulsory, "enforced contributions . . . for the support of the government." But, acknowledging that the term "tax" had no fixed meaning, the trial court found cases "distinguishing 'taxes' from 'fees' provide helpful guidance. The cases have recognized several general categories of compulsory fees or charges that are distinguishable from taxes . . . . These categories are: (1) special assessments and related business charges, (2) development fees, (3) user fees, and (4) regulatory fees." The trial court discussed cases analyzing charges under these four categories, and reasoned as follows:

> "[T]he charges are like a development fee in that they are used to mitigate impacts related to the fee payer's business operations. However, unlike a development fee, the charges are not imposed in return for the privilege of developing land, and the amount of the charge is not tied to the individual payer's impact on the community.
>
> "Like a user fee, those who purchase allowances receive something that is not received by those who do not pay -- a tradable right to emit GHG. However, unlike a user fee, the charges are not imposed to offset the cost of a government product or service.

"Like a regulatory fee, the charges are collected as part of a regulatory program and the funds collected are used to carry out regulatory activities. However, unlike a traditional regulatory fee, the charges are not intended to shift the costs of a specific regulatory program. . . . The proceeds of the sales will be used to pay for a wide range of (as-yet-undetermined) regulatory programs (ostensibly) related to AB 32."

The trial court outlined four points militating in favor of finding a tax, as follows:

(1) The "charges are not entirely voluntary" because the "covered entity either must reduce its GHG emissions to zero -- which, generally speaking, is impractical or impossible -- or acquire allowances." Further, the court thought "the purchase of allowances is little different from an emissions tax."

(2) "[A]n allowance has no value independent of the regulatory scheme. While those who purchase allowances may be said to acquire a 'benefit' vis-à-vis other covered entities, they do not acquire any 'benefit' vis-à-vis other (non-covered) entities, which retain the right to freely emit GHGs without the need for acquiring any allowances."

(3) "[T]he amount charged is determined, at least in part, by government fiat. Although the auction relies on bidding, there is only one round of bidding, using sealed bids, and the auction operator will not accept bids that fall below a pre-set 'auction reserve price.' The auction reserve price is a 'price floor' set by 'government fiat.' In addition, sales of allowances from the 'containment reserve' are sold at prices fixed by the government. Moreover, by definition, the government has artificially constrained the supply of allowances -- indeed, this is the very purpose of the 'cap.' Thus, it is not factually accurate for [the Board] to claim that the price . . . is determined by the 'market.' "

(4) "Under the [2012] legislation, the proceeds must be used to further AB 32's regulatory goal . . . . However, since nearly every aspect of life has some impact on GHG emissions, it is difficult to conceive of a regulatory activity that will not have at least some impact on GHG emissions."[24]

Next, the trial court outlined four correlative points weighing against finding a tax:

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[24] The plaintiffs emphasize this last finding, arguing that it is possible to connect any human activity to GHG emissions, meaning there is no definable regulatory horizon. Our dissenting colleague appears to accept this view.

(1) The allowances have "economic value and can be traded," and "[i]f the atmosphere's capacity to assimilate GHGs is viewed as a limited public resource, selling emissions allowances can be analogized to selling a right to use a public resource, similar to a hunting [or] fishing license, a mineral extraction permit, or a wireless electromagnetic spectrum license."

(2) "[T]he purchase of allowances is, in some respects, voluntary. Because covered entities receive a significant portion of the allowances for free, covered entities have some control over when, and perhaps if, they participate in sales of allowances. Covered entities may be able to reduce their GHG emissions to reduce or completely avoid their need to purchase . . . allowances. Further, [they] are not compelled to purchase allowances from the [Board]." (Fn. omitted.)

(3) "[T]he price of allowances is determined at least in part by market forces."

(4) The proceeds will further the regulatory purposes of the Act "and the charges were imposed (ostensibly, at least) for regulatory purposes."

Ultimately, the trial court found (1) "the primary purpose of the charges is regulatory," (2) the "fees collected will not exceed the costs of the regulatory activities" because revenue will advance the Act's goals, and (3) given that "the charges are a byproduct of the implementation of a regulatory program"[25] and the "proceeds are received in exchange for the purchase of a [valuable,] tradable right to emit GHGs," a sufficient "reasonable relationship" exists between the charges "and the covered entities'

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[25] A point pressed by the Board and EDF, in defense of the trial court's ruling, is that the Board had no *purpose* to generate revenue, and therefore any auction revenue is merely a "byproduct" of the regulations. They point out that Proposition 13 restricted changes "for the purpose of increasing revenues" (Cal. Const., art. XIII A, former § 3) and contend revenue generation was not the purpose of the auction system. But the Board concedes it knew the auctions would generate revenue, and it adopted the regulations with such knowledge, therefore it intended to generate revenue, whether or not that was its prime motivation. (See *People v. Colantuono* (1994) 7 Cal.4th 206, 217-218 [oblique intention; where the actor knows likely consequence, is not explicitly motivated to achieve it, yet still acts, the actor intends the consequence]; *City of Madera v. Black* (1919) 181 Cal. 306, 314 ["Persons, even when acting officially, are presumed to intend the necessary consequences of their acts"]; Evid. Code, § 665.) Therefore, as plaintiffs maintain, we cannot characterize billions of dollars of anticipated auction revenues as a fortuitous byproduct of the regulations.

(collective) responsibility for the harmful effects of GHG emissions." Thus, the trial court found no Proposition 13 violation.

C. *The Auction of Allowances is Not a Tax*

We shall first explain why we are not bound to apply the *Sinclair Paint* test to assess the legality of the auction system. (Part II.C.1., *post*.) We then describe the twin traditional hallmarks of a tax; a tax is (1) a compulsory exaction that (2) confers nothing of particular benefit to the payor. (Part II.C.2., *post*.) We next explain why the purchase of allowance credits, either directly via Board auction or indirectly via the secondary market, is not compulsory. (Part II.C.3., *post*.) We then explain why the emissions allowances constitute valuable property rights--albeit only as between private parties. This valuable property right consists of the privilege to pollute California's air, a privilege no party has a vested right to continue doing. (Part II.C.4., *post*.) We conclude that the auction system created by the Board is part of the market-based distribution system the Board was charged with developing, and the choice to participate in that market does not equate to a tax payment. (Part II.C.5., *post*.) Finally, we briefly address the *use* of the auction revenue, discussed in detail in the briefing, and explain that we need not decide the propriety of any specific expenditure in this case. (Part II.C.6., *post*.)

1. Sinclair Paint *Does Not Control This Case*

We reject Morning Star's claim, echoed by others, that *Sinclair Paint* "established criteria that lower courts must use to determine whether *a revenue generating measure* is a tax under Proposition 13 or a regulatory fee." (Italics added.) *Sinclair Paint* did *not* hold that its analysis applied to any "revenue generating measure." Instead, it analyzed whether the exaction at issue was exempt from Proposition 13 as a purported regulatory fee. (*Sinclair Paint*, *supra*, 15 Cal.4th at p. 870; see *Tomra Pacific, Inc. v. Chiang* (2011) 199 Cal.App.4th 463, 487 [*Sinclair Paint* "set out guidelines for determining whether a denominated fee is, in fact, a bona fide regulatory fee and not a disguised tax."].) As the Board pointed out in oral argument, *Sinclair Paint* did not create "a binary world" where

every payment to the government must be either a fee or a tax. The Board's regulations do not purport to impose a regulatory fee on polluters, but instead call for the auction of allowances, a different system entirely. (Cf. *San Diego Gas & Electric Co. v. San Diego County Air Pollution Control Dist.* (1988) 203 Cal.App.3d 1132, 1148 [non-tradable fees imposed on polluters upheld in part because "[a] reasonable way to achieve Proposition 13's goal of tax relief is to shift the costs of controlling stationary sources of pollution from the tax-paying public to the pollution-causing industries themselves"].) Because the issue is different, *Sinclair Paint* does not control and we are not compelled to apply its test. Cases are not authority for propositions not considered therein. (*Siskiyou, supra,* 237 Cal.App.4th at p. 437, fn. 11.)

Morning Star points to Senate Bill No. 957, a proposed Budget Act, which in part would have found "the funds generated by the [cap-and-trade] program are regulatory fees that conform with" *Sinclair Paint*. (Sen. Bill No. 957 (2011-2012 Reg. Sess.) as introduced Jan. 10, 2012, § 15.11, subd. (c).) But Senate Bill No. 957 died and therefore is meaningless. (See *Order of Railway Conductors v. Swan* (1947) 329 U.S. 520, 529 [91 L.Ed. 471, 478].) Instead, the Budget Act of 2012 (Assem. Bill. No. 1464) included language ensuring the money would be spent on projects to reduce greenhouse gases, and contains no reference to *Sinclair Paint*. (See Stats. 2012, ch. 21, § 15.11.)

In a related claim, CalChamber points to a Legislative Counsel opinion purportedly concluding any auction system would have to pass muster under *Sinclair Paint*. Although two Legislative Analyst reports in the record refer to such a Legislative Counsel opinion, the opinion is not in the record, and the Legislative Counsel's supervising librarian has advised this court that no publicly available opinion on that subject has been issued. Thus, although CalChamber seeks support in that purported opinion, because its reasoning is unknown, it lacks any persuasive value. (Cf. *Pacific Gas & Electric Co. v. Zuckerman* (1987) 189 Cal.App.3d 1113, 1135, 1136 [the value of expert opinion rests "in the factors considered and the reasoning employed"].)

In short, we reject the claim that *Sinclair Paint* controls this case.

2. *Hallmarks of a Tax*

Having concluded the *Sinclair Paint* test does not apply, we must next consider what test *does* apply to ascertain whether a tax is being imposed. Although the term "tax" has different meanings in different contexts, we find that, generally speaking, a tax has two hallmarks: (1) it is compulsory, and (2) it does not grant any special benefit to the payor.

First, "The word tax, in its common acceptation, *denotes some compulsory exaction*, which a government makes upon persons or property within its jurisdiction, for the supply of the public necessities." (*People v. Naglee* (1850) 1 Cal. 232, 253, italics added; see *Sinclair Paint*, *supra*, 15 Cal.4th at p. 874 ["Most taxes are compulsory rather than [a] response to a voluntary decision to develop or to seek other government benefits or privileges"].)

Such voluntariness concerns have arisen in development fee cases. One case involved a local scheme "referred to as indirect source review (ISR) . . . intended to encourage developers to reduce indirect pollution, i.e., mobile source emissions, caused by new development projects. Under ISR, the developer can reduce emissions by incorporating pollution-reducing features in the project, or by paying a fee to fund offsite projects that will reduce emissions, or by a combination of the two." (*Building Industry*, *supra*, 178 Cal.App.4th at pp. 124-125.) "A developer can accomplish the required emission reductions onsite by incorporating measures to reduce vehicle miles traveled, vehicle trips and/or areawide sources of emissions such as fireplaces, wood stoves and landscape equipment. *Alternatively, the emissions can be reduced through paying a fee to fund offsite emission reducing projects*. Finally, the developer can use a combination of onsite emission reduction measures and a fee to fund offsite emission reduction projects." (*Id*. at p. 128, italics added.) It has also been held that "*Whereas taxes are compulsory in nature*, development fees are imposed only if a developer elects to

develop." (*California Bldg. Industry Assn. v. Governing Bd*. (1988) 206 Cal.App.3d 212, 236, italics added.) Similarly, "Regulatory fees are not compulsory. Rather, fee payers have some control both over when, and if, they pay any fee, i.e., when or if they elect to engage in a regulated activity, and/or the amount of the fee they are compelled to pay. For example, *fee payers can modify their conduct to pollute less or consume less water*." (*Building Industry*, *supra,* 178 Cal.App.4th at p. 132, italics added; see *Scientists*, *supra*, 79 Cal.App.4th at pp. 949-950 [describing a prior regulatory fee case, where it was important that "the payors had some control over the amount of the regulatory fee they were compelled to pay by the degree to which their respective activities impacted the environment. The more they polluted the air and consumed the water, the more they paid"].)

Second, as Witkin succinctly puts it, "*no compensation is given to the taxpayer* except by way of governmental protection and other general benefits." (9 Witkin, Summary of Cal. Law (10th ed. 2005) Taxation, § 1, p. 25, italics added.) Taxation "promises nothing to the person taxed beyond what may be anticipated from an administration of the laws for individual protection and the general public good." (71 Am.Jur.2d (2001) State and Local Taxation, § 6, p. 307; see 1 Cooley, *supra*, Taxes, Their Nature & Kinds, pp. 1-3, fn. omitted [in exchange for enforced contributions, "the state is supposed to make adequate and full compensation, in the protection which it gives to his life, liberty and property, and in the increase to the value of his possessions, by the use to which the money contributed is applied"]; *Arnold v. City of Knoxville* (1905) 115 Tenn. 195 [905 S.W. 469] [quoting Cooley]; *Schulz v. Dixon County* (1938) 134 Neb. 549 [279 N.W. 179] [similar].)

Our Supreme Court has similarly characterized the general nature of taxation: "Ordinarily taxes are imposed for revenue purposes and not 'in return for a specific benefit conferred or privilege granted.' " (*Farm Bureau*, *supra*, 51 Cal.4th at p. 437, quoting *Sinclair Paint*, *supra*, 15 Cal.4th at p. 874.)

Thus, in considering whether the auction system represents a tax of some sort, we first consider whether participation therein by covered entities is compulsory, and then consider whether and to what extent participants receive anything of particular value for their payment.

3. *Participation in the Auction is Voluntary*

Plaintiffs and allied amici curiae posit the view that participation in the auction sales or secondary emissions allowances market is compulsory. We reject this view.

As intervener EDF points out, "Regulated entities can comply with the cap-and-trade rule without participating in the auction or reserve, including by reducing emissions, purchasing allowances from third parties, using banked allowances from prior years, and purchasing [or earning] emission offsets (credits generated from voluntary emission reductions made outside the capped sectors)."

As shown by materials in the Board's initial and unopposed request for judicial notice, non-covered entities buy allowances, either to speculate, or to retire them and reduce emissions. (See 1 New Palgrave Dict. of Economics & Law (1998) p. 127 ["The bids in the US pollution-rights auctions also revealed another kind of valuation. Environmental groups submitted bids; by winning the bidding they ensured that those [licenses] would not be utilized"].) NAM concedes that some non-emitters buy allowances "to retire them." That fact cuts sharply against the view that the auction is compulsory, because, as EDF notes, "Taxes do not attract volunteers."

It is not necessary to obtain extra allowances or offset credits unless an entity chooses to pollute beyond a certain level, something the government does not compel it to do. (See *Building Industry*, *supra,* 178 Cal.App.4th at p. 132 [entities "can modify their conduct to pollute less"].) Indeed, the whole point of the Act is to *stop* entities from polluting excessively.

Morning Star, echoed by other plaintiffs and allied amici curiae, argues that in order to stay in business in California it must obtain a sufficient number of emissions

allowances from somewhere. Because Morning Star does not receive all the required emissions allowances free of charge from the Board, it must obtain them through other means, which it views as "a necessary cost of staying in business in California." In Morning Star's view, it is "compelled" to purchase allowances, shut down, or move out of state. Morning Star asserts it is impossible for it to operate without allowances given current technology, it would be more expensive to buy allowances on the secondary market, and therefore it is "both false and ridiculous" to deem allowance purchases to be voluntary.

In support of its petition, Morning Star submitted a declaration by an employee, which we have referred to as the "Rabo" declaration in our request for supplemental briefing. Taking its contents as true, which we shall do for purposes of this opinion,[26] it establishes as follows:

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[26] The fact a declaration appears in the record and was not directly contravened does not necessarily establish the truth of its contents. A trial court is free to disbelieve evidence whether or not contradicted, if there is a rational basis for doing so. (See *Foreman & Clark Corp. v. Fallon* (1971) 3 Cal.3d 875, 890; *Hicks v. Reis* (1943) 21 Cal.2d 654, 659-660.) For example, the Rabo declaration in large part hinged on the claimed lack of awareness of feasible alternative technologies, but does not set forth what steps Morning Star took to educate itself. Nor did Morning Star include declarations from engineers or scientists that support its economist's view that no feasible alternatives to currently used emissions control methods exist. But even if the Rabo declaration were wholly complete and unassailable, it would make no difference to the analysis of the legal question before us, as we explain *post* in this section.

After oral argument in this case, our Supreme Court granted review in an unrelated case, raising the following two issues: "(1) Can a statute be challenged on the ground that compliance with it is allegedly impossible? (2) If so, how is the trial court to make that determination?" (*National Shooting Sports Foundation, Inc. v. State of California* (2016) 6 Cal.App.5th 298, review granted Mar. 22, 2017, S239397.) Those issues arguably speak to Morning Star's act of submitting the Rabo declaration--material outside the normal administrative record--to the trial court. However, we express no view on the procedural propriety of such action herein.

Janet Rabo is an economist employed by Morning Star, and her duties include analyzing data "in connection with domestic tomato processing plants and farming operations as well [as] international economics affecting Morning Star's businesses." A key responsibility is ensuring compliance with the Act, including bidding at auctions to obtain allowances. Morning Star has three tomato processing plants in California that account for 25 percent of California processed tomato production and 40 percent of the nationwide ingredients for tomato paste and diced tomatoes. Morning Star uses natural gas to process tomatoes, but does not receive enough free allowances, and Rabo knows of no "cost-effective" means to reduce emissions. In her view, purchasing allowances on the open market will "be far more expensive" than purchasing them at auction from the Board. In her ultimate view--which is in reality a legal conclusion rather than a expert opinion--it is "both false and ridiculous" to assert that participation in the auction is voluntary.

We agree that compliance with the cap-and-trade program may increase the cost of doing business in California for covered entities such as Morning Star. But Rabo does not explain why Morning Star cannot absorb the increased cost of doing business or mitigate the increase in some other fashion. As the Board pointed out at oral argument, a covered entity has a menu of options to achieve compliance, as we have referenced *ante*. Rabo does not describe any potential mechanism to recoup costs nor why any efforts to recoup costs would fail or prove insufficient. Although Morning Star may ultimately make the business decision that it must pay for allowances in order to maintain its operations in California, making the business decision to pay is not the same as being compelled to do so by the state.[27]

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[27] Morning Star argues "for those who choose to remain in California, the state income tax does not somehow become 'voluntary' and not a tax. Merely because a company like Morning Star chooses to continue to do business in the state by purchasing allowances at

The fact that some businesses may choose not to participate in the program and may instead choose to leave the state is a potential side effect which the Act itself contemplates. (See § 38562, subd. (b)(8).) But the possibility of leakage lends no weight to the argument that the cap-and-trade scheme amounts to a *tax*. A number of requirements for businesses, whether taxes, safety regulations, minimum wage statutes, or command-and-control pollution control regulations, might cause a particular business to become unprofitable. This unfortunate reality does not translate into a *compelled* purchase of auction credits.

Compliance instruments are "demanded only as often as a party of his own accord, chooses to perform certain acts." (*People v. Naglee*, *supra*, 1 Cal. at p. 253.) This is similar to the rationale supporting exaction of developer fees, which require a developer to dedicate land or pay impact fees for the privilege of new development, which exactions are *not* viewed as compulsory. (See *Trent Meredith, Inc. v. City of Oxnard* (1981) 114 Cal.App.3d 317, 328 ["Even though the developer cannot legally develop without satisfying the condition precedent, he voluntarily decides whether to develop or not to develop"]; *Kern County Farm Bureau v. County of Kern* (1993) 19 Cal.App.4th 1416, 1423; *Russ Bldg. Partnership v. City and County of San Francisco* (1987) 199 Cal.App.3d 1496, 1505.)

Albeit not explicitly, plaintiffs seem to rely on the foundational premise that covered entities have some vested right to continue polluting California's air without paying for the privilege to do so. Therefore, in their view, compelling them to incur costs

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auction does not make the auction payments any more 'voluntary' or any less of a tax." This argument is unpersuasive, because Morning Star need not leave the state to avoid buying auction credits. Instead, like any other covered entity, it can modify its polluting behavior or obtain offset credits. Both of these options, admittedly, may be costly, but not necessarily any more so than if the Board had imposed a command-and-control cap on emissions. This seems to be another iteration of a point we reject. The fact that the auction system may result in *costs* does not make the auction system a *tax*.

for engaging in "business as usual" is somehow compulsory. For example, Morning Star asserts that "the only 'benefit' successful bidders receive here is the requirement to pay for what they had been doing before for free." Although this observation may well be accurate, Morning Star does not support its theory that bidders ever had the right to pollute for free. They did not. As EDF points out, the Board could instead have imposed a declining cap on Morning Star's emissions under a command-and-control system and ordered Morning Star to stop emitting GHGs beyond a certain amount.[28] However, under the auction system, Morning Star has more options. It can continue polluting the environment as much as it was before, except that now it must pay for the privilege of doing so. The right to continue polluting is a substantial benefit; that Morning Star was previously allowed to pollute for free does not change that fact. Contrary to suggestions by plaintiffs, implicit or otherwise, there is no vested right to pollute in California. (See, e.g., *Communities for a Better Environment v. South Coast Air Quality Management Dist.* (2010) 48 Cal.4th 310, 323-324 (*Communities*); *Hardesty v. Sacramento Metropolitan Air Quality Management Dist*. (2011) 202 Cal.App.4th 404, 414-416, 427.)

As another court observed: "Here it appears the Oil Companies are asking us to determine they have a fundamental vested right to release gasoline vapors while dispensing fuel to their customers. How are we to answer the public, on the other hand, who assert a fundamental vested right to breathe clean air? If either exists, it must be the latter. We are not presented with the enforcement of a rule which effectively drives the Oil Companies out of business. *At most it puts an economic burden on them increasing the cost of doing business*." (*Mobil Oil Corp. v. Superior Court* (1976) 59 Cal.App.3d 293, 305 (*Mobil Oil*), italics added; see *Building Industry*, *supra*, 178 Cal.App.4th at p.

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[28] Under the Act, the Board was to consider "direct emission reduction measures." (§ 38561, subd. (b).) This is another term for command-and-control measures.

132.) As we explain more fully in the next section, the right to pollute is a valuable privilege for which a cost may properly be imposed.

4. *Allowance Credits are Valuable Commodities*

The purchase of an allowance, whether at auction or in the secondary market, conveys a valuable asset--the privilege to pollute the air. This is unlike any tax we know. As EDF contends, "unlike taxes, which offer no discrete benefits to the payers, the auction and reserve provide participants valuable, tradable emission allowances as consideration for the purchase price. They may be used for current compliance, banked for future compliance, or sold, each of which returns value to the holder. Because participants' bids presumably reflect the value they ascribe to the allowances, the revenue generated by the auction and reserve will not exceed the aggregate value to purchasers of the allowances sold."

Under the Board's regulatory definitions, " 'Property Right' means any type of right to specific property whether it is personal or real property, tangible or intangible." (Cal. Code Regs., tit. 17, § 95802, subd. (a)(299).) A compliance instrument is an offset credit or emissions allowance. (*Id*., § 95802, subd. (a)(69).) A substantive regulation provides: "Each compliance instrument issued by the Executive Officer represents a limited authorization to emit up to one metric ton in CO_2e of any greenhouse gas specified in section 95810, subject to all applicable limitations specified in this article. No provision of this article may be construed to limit the authority of the Executive Officer to terminate or limit such authorization to emit. *A compliance instrument issued by the Executive Officer does not constitute property or a property right*." (*Id*., at § 95820, subd. (c), italics added.)

Although, when read in isolation, these regulations could be interpreted to mean that emissions allowances do not constitute property or a property right, when examined in context it becomes clear that this passage refers only to property rights as against the state, not rights as between private parties. A "property right" can mean different things

in different contexts. For example, a winemaker received federal "COLAs" or certificates of label approval, which purported to allow the use of "Napa" on wine labels where the wine was produced from grapes not grown in Napa Valley. A California statute prohibited the use of misleading geographic names on wine labels. (See *Bronco Wine Co. v. Jolly* (2004) 33 Cal.4th 943, 950-956 [holding state labeling statute was not preempted by federal law].) We upheld the state statute as against a claim that it effected a taking of a property right conferred by the federal COLAs. (*Bronco Wine Co. v. Jolly* (2005) 129 Cal.App.4th 988, 1029-1033 (*Bronco Wine*).) In doing so, we distinguished between property rights for purposes of a *takings* analysis and property rights for purposes of a *procedural due process* analysis, finding that the latter embraces a broader conception of property rights:

> "In determining whether permits or licenses are property, the courts consider whether the permit or license is transferable, the extent to which the government has the right to regulate the underlying activity, or to revoke, suspend, or modify the permit or license, and whether there has been a legislative or regulatory expression that issuance of the permit does not create a property right. [Citation.]
>
> "Considering these hallmarks of property, the courts generally have found that licenses and permits do not constitute property rights for purposes of the takings clause. [Citations.] *However, where a license bears the hallmarks of property, it has been held to be a protectable property right*. [Citation.]
>
> "[¶] . . . [¶]
>
> "Contrary to the assumption in [a prior case], the due process and takings clause concepts of property are not coterminous. The due process clause recognizes a wider range of interests in property. [Citations.]" (*Bronco Wine*, *supra*, 129 Cal.App.4th at p. 1031, italics added.)

This distinction between property rights for purposes of a takings analysis--that is, property rights as between the government and an individual--and property rights as between private individuals, has been articulated in cases analogous to this one.[29]

We have previously held that: "In California, the right to pollute the air can be bought and sold. Air quality management districts have created a valuable commodity, the emission reduction credit (ERC). *The ERC is evidenced by transferable certificates approved, banked, and issued by the districts*. Simply put, a polluter who pollutes less can sell the ERC to allow the purchaser to pollute more." (*Jopson v. Feather River Air Quality Management Dist.* (2003) 108 Cal.App.4th 492, 494 (*Jopson*), italics added.) The regulatory system in *Jopson* follows the cap-and-trade model adopted by the Board, rather than a command-and-control model, and in that model, transferability of allowances conveyed value.

Similarly, by statute federal Clean Air Act allowances--analogous to GHG allowances under the Board's regulations--are said to confer no property rights: "An allowance allocated under this title is a limited authorization to emit sulfur dioxide in accordance with the provisions of this subchapter. *Such allowance does not constitute a property right*." (42 U.S.C.A. § 7651b(f), italics added.) However, despite this language, very similar to the regulation governing allowances under the Act (Cal. Code Regs., tit. 17, § 95820, subd. (c) ["A compliance instrument . . . does not constitute property or a property right"]), the *transferability* of such allowances made them valuable as between private parties. (See *Ormet Corp. v. Ohio Power Co.* (4th Cir. 1996) 98 F.3d 799, 802 ["The transferability of allowances having durable economic value is . . . expected to

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[29] Contrary to the dissent's view, we do indeed "recognize that this litigation is not between private parties, but between the plaintiffs and the state." (Dis. opn., *post*, at p. 10.) Our point is that private parties (such as Morning Star) are holding a thing of value once they *acquire* the auction credits, regardless of how and from whom the credits were acquired.

create incentives for aggressive and innovative efforts to control pollution"]; see also *Cabo Distributing Co., Inc. v. Brady* (N.D.Cal. 1992) 821 F. Supp. 601, 609-610 [holder of COLAs entitled to procedural due process protections]; *Elk Hills Power, LLC v. Board of Equalization* (2013) 57 Cal.4th 593, 609, fn. 7 ["Even if [by statute] ERCs are not property, an assessor may properly consider their presence when valuing" a power plant; there, the statute gave ERC holders "exclusive right to use them" (§ 40710)]; *Ferguson v. Ferguson* (Alaska 1996) 928 P.2d 597, 599, 600 [although regulations provided fishing quota allocations " 'do not convey property rights' " they were an asset subject to marital property division, because the holder could transfer them]; Gehing & Streck, *Emissions Trading, etc*. (2005) 35 Envt. L. Rep. 10219, 10223 ["between the contracting parties, it seems that all normal property rights . . . are available. . . . Utilities and all other allowance holders can exclude all others, *besides the government*, from interfering with their possession, use, and disposition of allowances" (italics added)].)

Thus, the regulations declaring that the allowances confer no property rights preclude an allowance holder from asserting a takings claim *against the State*, but the free alienability of the allowances means they are of value to the *holder*. Indeed, that is the whole point of the "trade" part of the cap-and-trade system, the free alienability of the allowances as between private parties. (See *Jopson*, *supra*, 108 Cal.App.4th at p. 494.) That makes them property for due process purposes, because "[t]he right to exclude others, and to sell, assign or otherwise transfer ownership are traditional hallmarks of property." (*Bronco Wine*, *supra*, 129 Cal.App.4th at p. 1030; cf. *Conti v. United States* (Fed.Cir. 2002) 291 F.3d 1334, 1340-1341 [where holder could not transfer fishing permit, no property interest found].) It is difficult to see why any entity would be willing to trade in allowances in the first instance, if the allowances did not constitute property of any kind.

As discussed by the parties in their supplemental briefing, this point was addressed during the rulemaking process. The Board's Initial Statement of Reasons states in part that "property rights cannot attach to the compliance instruments because, *in the event of federal preemption in the cap-and-trade market or other conditions, California must have the ability to revoke the compliance instruments without creating a loss to the people of California*." (Italics added.) The Board's Final Statement of Reasons confirmed the need for the ability to revoke compliance instruments to protect the State.

But as just explained, this does not mean compliance instruments, including emissions allowances, lack value *to the holders*. As the trial court found, emissions allowances consist of valuable, tradable, private property rights.

5. *The Auction Scheme Does not Create a Tax Subject to Proposition 13*

As we have described, no covered entity is forced to buy emissions allowances, and such allowances are things of value to the owner. These two aspects of the auction system are alien to any reasonable conception of a "tax," as that term has been used at common law and through *Sinclair Paint* and beyond. As we have explained, the twin hallmarks of a tax are that it is compulsory, and that it conveys nothing of particular value to the payor. The auction system meets neither of these conditions, and therefore it is not a tax.

The parties offer hypotheticals which we find unpersuasive. Many Californians are compelled to pay income taxes, but despite this compulsion receive no particular thing of value. Similarly, a person may choose to buy a pencil, knowing sales tax will be added to the price, but the buyer receives nothing of particular value *for the tax*. Neither of these scenarios is akin to buying an emissions allowance, whereby a party chooses to purchase a valuable right to pollute. (Cf. Cooley, *supra*, Taxes, Their Nature & Kinds, pp, 1-3; Witkin, *supra*, § 1, p, 25.)

Morning Star argues the payments are not voluntary because they merely allow it to do what it is already doing. That argument might have relevance if Morning Star had a vested legal right to continue polluting. As we have discussed *ante,* it does not. (See *Communities*, *supra*, 48 Cal.4th at p. 324 "the boiler permits give ConocoPhillips no vested right to *pollute the air* at any particular level"]; *Mobil Oil*, *supra*, 59 Cal.App.3d at p. 305.) Thus, it is not accurate to liken the auction system to payment for the privilege to stay in business in California. It is a payment for the privilege to pollute the air in California.

Some plaintiffs posit that if we find the auction regulations are not a tax, the Legislature could construct similar ways to extract money from Californians and evade Proposition 13 (and perhaps other initiatives). For example, they hypothesize the State could create a cap-and-trade program for vehicle mileage: Each registered vehicle would be given a periodic allowance, and would have to obtain additional allowances to exceed the base allotment. This would reduce road decay and reduce GHG emissions. NAM, echoed by CalChamber, states: "No one would doubt that such a scheme would impose a tax on driving." Putting aside Proposition 26, which is not implicated by this case, we *do* doubt it. After all, the State could instead enact a command-and-control rationing system for drivers, but the hypothetical provides a bypass for those drivers who choose to exceed their base allotment. Such a scheme would not be a "mileage" tax, as plaintiffs suggest.[30] Instead, the market would set the price, and drivers could choose how to exercise and modify their driving behavior. In any event, we can confront such

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[30] Whether such a system would be deemed an impermissible burden on intrastate travel presents an entirely different question not relevant to this discussion, and not before us. (But cf. *Tobe v. City of Santa Ana* (1995) 9 Cal.4th 1069, 1100-1101; *Allen v. City of Sacramento* (2015) 234 Cal.App.4th 41, 60 ["Otherwise lawful ordinances that have an indirect or incidental impact on the right to travel and do not discriminate among classes of persons by penalizing the exercise of the right to travel are not constitutionally impermissible"].)

hypothetical situations if and when they arise; we do not offer any advisory opinions at present.

In short, because the Board's cap-and-trade regulations do not compel anybody to buy emissions allowances, and confer on voluntary buyers a valuable commodity, they do not create a "tax" as that term is generally understood. The auction sales program does not violate Proposition 13.

6. *Use of the Auction Revenue*

Plaintiffs and allied amici curiae contend that under various statutes the money--raised by "an unelected, politically-appointed state board"--is being used to support diverse programs that would otherwise be paid for from general fund sources. Their point is the Legislature has effectively adopted a cash cow sired by the Board and is milking it for a purportedly endless number of programs that have at best a tenuous connection to the discharge of GHGs by covered entities. At oral argument this was referred to pejoratively as a "slush fund."

We conclude this issue is not ripe, but we address it briefly to explain why it is important to decouple the issues of *generation* of revenue from the *expenditure* thereof, when evaluating whether a payment to the government equates to a tax.

In the trial court, Morning Star argued--without contradiction--that a bill "requires [a] set aside [of] 25% of [auction revenues] to projects benefitting disadvantaged communities, and at least 10% of that fund must go toward projects actually located in such communities. . . . Although it may be a good thing to benefit disadvantaged communities . . . there is little if any relationship that has been established between reducing greenhouse gas emissions and benefitting disadvantaged communities." Plaintiffs also reference certain 2014 legislation allocating revenues to a wide variety of programs. We granted Morning Star's request for judicial notice of these bills, *ante*.

We have reviewed the three petitions in this case, and none seeks to invalidate any of the Legislature's decisions about how to spend the auction proceeds; instead, their

joint object is to invalidate the auction sales, although some parts of some petitions mention some uses of auction proceeds. But the legality of any particular expenditure was not attacked in the trial court, and no plaintiff seeks to abrogate any specific expenditure in their briefing or supplemental briefing.

If the Legislature appropriated auction proceeds in a manner violating the current statute governing such revenues (Gov. Code, § 16428.8), no doubt a suit could be filed to restrain such misuse of revenue by analogy to the "special fund" cases. (See *City of Azusa v. Cohen* (2015) 238 Cal.App.4th 619, 628; *Veterans of Foreign Wars v. State of California* (1974) 36 Cal.App.3d 688, 692-696 (*Veterans*); see also *Edgemont Community Service Dist. v. City of Moreno Valley* (1995) 36 Cal.App.4th 1157, 1163-1166.) But the mere possibility that the Legislature may err at times in making an *expenditure* of allotted revenue does not speak to the legality of the *collection* of that revenue. Although, broadly speaking, the analysis of how a collected amount is spent may be relevant to the "fee versus tax" determination applied in *Sinclair Paint*, which we have discussed *ante*, it does not inform our analysis here. For reasons we have explained, we are not presented with a program triggering the *Sinclair Paint* analysis.[31]

To the extent the proceeds' expenditure may seem inappropriate to some, those who seek to challenge it may do so. As demonstrated by the special fund cases, Californians have shown little hesitation in challenging alleged improper diversions by the Legislature. And the *remedy* in such cases is generally restoration of the money to its proper purpose, and preclusion of future unlawful diversions, not return of money to the payors. (See, e.g., *Veterans*, *supra*, 36 Cal.App.3d at p. 696-697; *Shaw*, *supra*, 175

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[31] We do not disregard plaintiffs' arguments regarding the propriety of the expenditures merely because the plaintiffs have not specifically challenged those expenditures, as our dissenting colleague suggests. (Dis. opn., *post*, at pp. 12-13, 22.) Simply put, the expenditures are not relevant here.

Cal.App.4th at pp. 600-615 [invalidating legislative transfers of certain funds].) Therefore, we do not see how any hypothetical misappropriation of funds here would either nullify the program or transform the auction revenues into a tax.

More broadly, whether any program will advance the Act's goals is a legislative question in the first instance. (See *Collier v. City and County of San Francisco* (2007) 151 Cal.App.4th 1326, 1340; *Scientists*, *supra*, 79 Cal.App.4th at p. 950.) Courts presume legislation is valid and legislative findings are supported by evidence, in deference to the separation of powers of state government (see Cal. Const., art. III, § 3), and a challenger cannot simply go to court with contrary facts and launch a battle of experts to try to show the Legislature made a poor decision about how well a given program effectuates legislative purposes. (See *Schabarum v. California Legislature* (1998) 60 Cal.App.4th 1205, 1217-1221 [attack on budget expenditure does not permit second-guessing of legislative fact finding; but neither does the judiciary rubber stamp acts the invalidity of which plainly appear].) A legal avenue may be open to challenging a specific use of auction proceeds on the ground the expenditure is insufficiently related to the statutory purpose, but this case does not make such a challenge. Thus we have no occasion to prescribe the legal standards such an action must meet to succeed. It is enough to say that the possibility that an erroneous diversion might occur does not bolster the claim that the auction system creates an unlawful tax.

DISPOSITION

The judgments are affirmed. In each case appellants shall pay the appellate costs of respondents. (See Cal. Rules of Court, rule 8.278.)

Duarte, J.

I concur:

Butz, J.

Hull, J.

I concur in Part I of the opinion; as to Part II, I dissent.

The majority concludes the cap-and-trade auction program is not a tax because (1) the purchase of auction credits by businesses is voluntary, (2) the purchasing entities receive "a thing of value" in the nature of a commodity by their purchase, that is, the right to pollute the air and (3) we need not be concerned in this appeal about the use of the auction proceeds.

On this record, (1) the purchase of auction credits by Morning Star or other businesses similarly situated is not voluntary, (2) the auction credits do not confer property rights in the nature of a commodity or otherwise to Morning Star or businesses who are similarly situated, and (3) the use of the auction proceeds, a hallmark, if not the gold standard, for determining if a state exaction is a tax must be considered.

I conclude that the cap-and-trade auction program is a tax, therefore, I dissent.

Preliminarily, the majority begins its analysis by circumscribing for our purposes our Supreme Court's holding in *Sinclair Paint Co. v. State Bd. of Equalization* (1997) 15 Cal.4th 866 (*Sinclair Paint*) insofar as that holding relates to the case we are now considering. I agree that *Sinclair Paint* is of limited use (but not of no use) in deciding the issue before us. *Sinclair Paint* decided that the state exaction there at issue was a regulatory fee and not a tax, whereas all parties to these appeals seem to agree that the auction program is *not* a regulatory fee. Appellants contend that the auction program is not a regulatory fee and, if it is not a fee, it must therefore be a tax. Respondents, when questioned on that point during oral argument, took the position that the cap-and-trade auction proceeds are not a fee but are "something else." And indeed, the respondents cannot take any other position on this point because *Sinclair Paint* describes a "regulatory fee" as one that was made "in connection with regulatory activities which fees do not exceed the reasonable cost of providing services necessary to the activity for which the fee is charged and not levied for unrelated revenue purposes." (*Id.* at p. 876

citing *Pennell v. City of San Jose* (1986) 42 Cal.3d 365, 375.) Respondents cannot possibly fit the auction program within *Sinclair Paint*'s formulation of a regulatory fee.

Thus, the issue before the court is whether this "something else" is in fact a tax.

I

Voluntariness

Turning then to the question of the "voluntariness" of participating in the auction program, the only evidence in the trial court and the only evidence in this record on the question of voluntariness is the declaration of Janet Rabo, an economist with appellant, Morning Star Packing Company. Ms. Rabo declared, in pertinent part, as follows:

"I am an economist with The Morning Star Packing Company (Morning Star), and I am authorized to sign this declaration on its behalf: My job duties include economic and statistical analysis for Morning Star's business enterprises, including analysis of data in connection with domestic tomato processing plants and farming operations, as well international economics affecting Morning Star's businesses. One of my key responsibilities is to ensure that Morning Star is in compliance with all aspects of AB 32, and its implementing regulations, including the Cap and Trade Regulation governing emissions of greenhouse gases. This includes registering Morning Star as a Covered Entity, participating in state-run auctions, estimating Morning Star's compliance obligations for each compliance period, bidding on and purchasing emissions allowances at auctions to meet the compliance obligations, and keeping abreast of AB 32 regulatory developments. As the person who bids for greenhouse gas emissions allowances for Morning Star, I believe I am uniquely qualified to describe Morning Star's goals in participating in the auctions, and methodologies for achieving those goals.

"Morning Star is headquartered at 724 Main Street in Woodland, California.

"Morning Star was founded in 1970 by Chris Rufer, as a one truck owner-operator delivering tomatoes to canneries.

"Currently, Morning Star has three tomato processing plants in the San Joaquin and Sacramento valleys that account for over 25% of the California processing tomato production-supplying 40% of the U.S. ingredient for tomato paste and diced tomato markets-with revenues of approximately $350 million.

"Each of Morning Star's three tomato processing plants produce carbon emissions through the use of natural gas for tomato processing and canning.

"Beginning in 2013, Morning Star has been regulated as a Covered Entity under California's Cap and Trade Regulation. Under the current Cap and Trade Regulation, Morning Star, as a Covered Entity, is required to purchase and surrender California Carbon Allowances equal to the amount of carbon emitted as calculated by the regulation.

"Morning Star will receive some allowances free-of-charge based on a benchmark set by 2008-2010 emissions. But these allowances will not be enough to cover all of the emissions at Morning Star's plants.

"Morning Star is required by the Cap and Trade Regulation to surrender emissions allowances equal to our emissions in future years. If we fail to be in possession of the required amount of allowances at the time they are due, we are subject to costly penalties.

"We do not know what our C02 emissions will be in any future year. We can estimate our emissions based on previous years, but there will be variations due to weather, yields, pests, disease, and other uncontrollable obstacles agricultural industries face. For example, in 2013, the tomato crop was hit by a very damaging pest carrying a disease that wiped out thousands of acres of planted and growing tomatoes. As a result, planters had to replant their crops, and tomatoes that were expected to be ready for harvest in July will not be ready until October. That means that Morning Star will have to keep its tomato processing plants running longer than planned, thereby burning more natural gas and emitting more C02 this year than would be estimated based on past years.

"In an effort to mitigate our risk and control costs associated with compliance with the Cap and Trade Regulation, Morning Star found it necessary and essential to participate in the first two auctions held by CARB. To be in compliance with the Cap and Trade Regulation, Morning Star estimated that it needs to purchase more than 30,000 allowances for 2013. This number is likely to be greater based on the lengthening of the harvest season, as set forth in Paragraph 10.

"CARB has structured the allowance 'market' so that allowances will be more expensive in future years. There will be an increase in demand because more facilities will become Covered Entities, and the emissions cap will diminish over time, which will ultimately have the effect of lowering-the supply of allowances made available for auction, as we get closer to the final compliance date of 2020.

"This is reflected in the settlement price of the three auctions held to date. The first auction held in 2012, had a price floor of $10.00, and a settlement price of $10.09: The auctions held in 2013, have a floor price of $10.71, thereby automatically making allowances purchased in those 2013 auctions more expensive than those purchased in the first auction in 2012. The second auction settled at $13.62, while the third auction settled at $14.00. Due to this built-in mechanism by which prices increase with each succeeding auction, it is economically imperative to purchase allowances early in the program.

"There are no cost-effective technologies of which Morning Star is aware that would reduce our emissions of C02, and prevent us from having to purchase emissions allowances. Further, it is infeasible for our food processing plants to run under the 25,000 ton per year threshold of the Cap and Trade Regulation. We would just have to shut down all of the California plants. Morning Star has absolutely no choice but to participate in the auctions if it wants to stay in business in California.

"Purchasing emissions allowances on the open market from others, rather than purchasing them at auction, would make no economic sense because such purchases would be far more expensive than obtaining them directly from CARB at the auctions.

That is how the auction market is rigged in CARB's favor. Were it not so, financial firms would not even consider participating in the auctions. Financial firms participate because they believe they will be able to buy low at auction and sell high in subsequent trades. Covered Entities, on the other hand, do not have that luxury because they must use the allowances for purposes of complying with the Cap and Trade Regulation, and must surrender the allowances to CARB at the end of each compliance period.

"The notion that, as a Covered Entity, Morning Star's participation in the CARB auctions is somehow "voluntary" is both false and ridiculous.

"Morning Star has no way of determining the total expenditures that may be required by all Covered Entities in California to reduce their carbon dioxide emissions sufficient to comply with the goals of the Cap and Trade Regulation.

"Morning Star has no way of determining the total expenditures that may be required by all Covered Entities in California to deal with the issues raised by global warming."

Rabo's declaration was admitted into evidence in the trial court without objection. There was no evidence admitted in the trial court contradicting her declaration. Thus, there was no evidence contradicting Rabo's declaration that Morning Star's participation in the auction program was "voluntary" only in the sense that Morning Star could voluntarily cease doing business in California if Morning Star did not participate.

While the trial court did not expressly accept or reject Rabo's evidence that Morning Star could not continue to do business in California without purchasing the state credits, the court did note that:

"Contrary to what ARB argues, the charges have some traditional attributes of a tax. *First, the charges are not entirely voluntary*. It is important to remember that the allowances have value to covered entities only because the government has forbidden covered entities from emitting GHG without an allowance [noting that '[v]irtually every tax is in some sense "voluntary" in that one can avoid the tax by choosing not to engage

in the taxed activity. Taken to its logical extreme, even income, sales, and property taxes would not be "compulsory" because they must be paid only if one "voluntarily" earns income, purchases goods, or owns property. Yet no one would dispute these are taxes.']. *The covered entity either must reduce its GHG emissions to zero - which, generally speaking, is impractical or impossible - or acquire allowances*. Thus, from the perspective of a covered entity, the purchase of allowances is little different from an emissions tax. In the case of an emissions tax, covered entities obtain the right to emit GHGs by paying the tax; in the case of the cap-and-trade auction, they obtain this right by purchasing all allowances." (Emphasis added.)

The trial court at least impliedly accepted Rabo's declaration to the effect that Morning Star could not continue to do business in California without participating in the auctions and purchasing the necessary credits.

And, while it is true that the trial court did not (by the italicized language above) find that a covered entity had to "acquire allowances" *from the state*, I note that the state, beginning in 2013, reserved to itself 25 percent of the current year allowances remaining after free allocation and set aside for reserves (Cal. Code Regs., tit. 17, § 95910, subd. (c)) which reservation will increase to approximately 50 percent by 2020. (Maj. opn. at p. 8.)

Since the majority recognizes that " 'The word tax, in its common acceptation, *denotes some compulsory exaction*, which a government makes upon persons or property within its jurisdiction, for the supply of the public necessities.' (*The People v. Naglee* (1850) 1 Cal. 232, 253, italics added (Naglee); *see Sinclair Paint, supra*, 15 Cal.4th at p. 874 ['Most taxes are compulsory rather than [a] response to a voluntary decision to develop or to seek other government benefits or privileges'])" (Maj. opn. at p. 37) Rabo's declaration presents the majority with a problem, that is, it is the only evidence in the record on the issue of the "voluntariness" of the purchase of credits, voluntary purchases being one of the three major underpinnings of the majority's analysis.

Confronted with that problem, in concluding that the state auction program is voluntary, the majority seems to decide that, notwithstanding Rabo's uncontradicted declaration, Morning Star could stay in business by acquiring - outside of the auction program - the number of credits Morning Star needed to continue to operate its business. There is no evidence to support that conclusion.

Further, the majority characterizes Rabo's declaration as demonstrating only that participation in the auction program results in nothing more than an increase in costs to do business saying that "the fact the auction system may result in *costs* does not make the auction system a *tax*." (Maj. opn. at p. 42, fn. 27.)

" . . . Rabo does not explain why Morning Star cannot absorb the increased cost of doing business or mitigate the increase in some other fashion. As the Board pointed out at oral argument, a covered entity has a menu of options to achieve compliance, as we have referenced ante. Rabo does not describe any potential mechanism to recoup costs nor why any efforts to recoup costs would fail or prove insufficient. Although Morning Star may ultimately make the business decision that it must pay for allowances in order to maintain its operations in California, making the business decision to pay is not the same as being compelled to do so by the state." (Maj. opn. at pp. 41-42, fn. omitted; italics omitted.)

The majority then goes on to take the Rabo declaration to task by stating that "the Rabo declaration in large part hinged on the claimed lack of awareness of feasible alternative technologies, but does not set forth what steps Morning Star took to educate itself. Nor did Morning Star include declarations from engineers or scientists that support its economist's view that no feasible alternatives to currently-used emissions control methods exist." (Maj. opn. at p. 40, fn. 26.)

The majority finally dismisses Rabo's declaration by speculating, at respondent's invitation, that Morning Star had a "menu of options" that it could have turned to that would have allowed it to comply with the law without participating in the auctions and

stay in business at the same time. But there is no evidence in the record that such is a fact. At its essence, the majority is saying that it simply disbelieves Rabo when she declares that Morning Star could not continue to do business in California without participating in the auctions, a credibility finding not often made in the first instance in my experience by a court of review, especially given the fact that the trial court apparently credited her declaration. In support of its statement of disbelief, the majority cites two cases for the proposition that, unless done arbitrarily, a "trier of fact" may reject the testimony of a witness even though that testimony is uncontradicted. (See Maj. opn. at pp. 40-41, fn. 26.) We are not a trier of fact.

While it may be true that some participate in the auctions voluntarily as investors or those who would seek to re-sell credits, on this record, Morning Star's participation is not voluntary except in the sense, as noted by the trial court, that California income taxes are voluntary because one need not earn income or live in California as are property taxes as one need not own property.

The majority also says that, even though under the cap-and-trade law, a business may be required to absorb an increase in costs, those costs cannot be considered a tax even if the increased costs require it to go out of business in California, that is, results in "leakage," which the act anticipated. (Maj. opn. at p. 42.)

But in all of this the majority misses the point. This is an increase in costs that businesses such as Morning Star *must* bear if they wish to continue to do business in California; an increase in costs that is, in that sense, compulsory. It is no different than saying that an increase in income taxes is nothing more than an increase in costs that a private business or citizen must bear even though it may require it or him or her to leave California or an increase in property taxes are merely an increase in costs even though it may require the property's owner to give up its property in California. The point is, the "increase in costs" is compulsory and not voluntary unless one opts to "voluntarily" close their business in the state of California.

I cannot agree that, on this record, Morning Star's participation in the auctions is voluntary as that word is used in the context of determining whether a state exaction is a tax.

Finally, I must take exception to the majority's observation that "Albeit not explicitly, plaintiffs seem to rely on the foundational premise that covered entities have some vested right to continue polluting California's air without paying for the privilege to do so." (Maj. opn. at p. 43.) That is not what the plaintiffs are saying at all.

We must keep in mind this is not a challenge to the cap and trade program overall which requires covered entities to purchase credits if they cannot operate within the guidelines. Plaintiffs accept that. What they are challenging is the lawfulness of the Legislature's and the ARB's reservation to itself of sufficient credits to *require* purchase of credits *from the state* - as opposed to purchasing such credits on the free market - which revenue is used by the state as if it were general fund money, without calling that revenue generation a tax.

II

Auction Credits as Commodities

Working from the premise that the payment of taxes does not ordinarily convey a property right, the majority decides that the auction credits convey a property right in the nature of a commodity. The majority sees the state is selling a "right to pollute." This is a curious construction to say the least. While, without question, the state, in exercising its police powers, has the ability to legislate in an effort to achieve healthy air quality, it does not mean, conversely, that the state thereby also "owns" rights to pollute which it can sell to others. In any event, I do not find that construct persuasive.

The majority finds the auction proceeds convey a property right notwithstanding the provisions of California Code of Regulations, title 17, section 95820, subdivision (c) which reads:

"Each compliance instrument issued by the Executive Officer represents a *limited authorization* to emit up to one metric ton in CO2e of any greenhouse gas specified in section 95810, subject to all applicable limitations specified in this article. *No provision of this article may be construed to limit the authority of the Executive Officer to terminate or limit such authorization to emit. A compliance instrument issued by the Executive Officer does not constitute property or a property right.*" (Italics added.)

If I read the majority opinion correctly, it avoids what would otherwise be the plain language of this regulation by finding that it speaks only to property rights as against the state while the auction credits retain private property rights between private parties. (Maj. opn. at pp. 45-49.) Accepting at face value that this may be so, the analysis does not recognize that this litigation is not between private parties, but between the plaintiffs and the state. The question is whether the state's exaction of money through the auction program from a business that must participate in that auction in order to stay in business is a tax. The question cannot be avoided by finding the auction credits are valuable assets in the nature of commodities as between private parties buying and selling them as investments.

In my view, in light of the plain language of section 95820, subdivision (c) which describes (1) an authorization to emit as "limited," (2) as something that can be terminated or limited at the sole discretion of the state and (3) as something that, by regulation does not convey a property right, the conclusion cannot be avoided that where, as here, entities such as Morning Star are required to purchase auction credits to stay in business, what they purchase is no more a "thing of value" than is the payment of property taxes to keep ownership of one's home. Whatever else these authorizations are, as to Morning Star and others similarly situated, their value as a "property right" is ephemeral and the auction program cannot be said to convey a property right in the nature of a commodity or otherwise when emission authorizations can be limited or terminated by the state at any time.

The majority's effort to distinguish the auction programs from a tax by finding that the program conveys property rights in the form of a commodity to Morning Star is not analytically sound.

I note that in support of their analysis, the majority relies in part on *Jopson v. Feather River Air Quality Management Dist.* (2003) 108 Cal.App.4th 492 (*Jopson*). But in *Jopson,* an opinion in which I joined, the court simply stated that emission reduction credits issued by air quality management districts were a "valuable commodity" that could be sold between private parties. *Jopson* does not advance the majority's opinion here because, first, the court's description of emission credits as a valuable commodity in *Jopson* was simply background used to explain the litigation there at hand and, second, the court's observation was made without analysis or citation to any authority. *Jopson* certainly did not decide, or even discuss, whether limited authorizations to emit, authorizations that can be limited or terminated at any time, sold by the state to private businesses to be used by those businesses solely to stay in business in this state can or cannot be deemed a valuable commodity.

Finally, as to *Jopson*, the framework of the opinion assumed the purchase and sale of such credits would be among private parties, a different situation than we have here.

For plaintiffs, it cannot accurately be said that what Morning Star and others in their situation buy at the auctions are commodities carrying property rights. The auctions are instead a revenue vehicle for the state, a vehicle by which businesses are compelled to pay the state and obtain, in return only the ability to remain in business in California; a state exaction that has all the components of a traditional tax.

III

Use of the Auction Proceeds

The majority finds that the *use* of the revenue generated by the state auctions is a matter not "ripe" for adjudication because it is appropriate to "decouple" the issues of

revenue generation and revenue expenditures. (Maj. opn. at p. 50.) But an attempt to avoid factoring in the use of auction revenue on the question of whether or not the auction revenues arise from a tax does not stand up to careful scrutiny.

"The cases recognize that 'tax' has no fixed meaning, and that the distinction between taxes and fees is frequently 'blurred,' taking on different meanings in different contexts. (*Russ Bldg. Partnership v. City and County of San Francisco* [(1987)] 199 Cal.App.3d [1498,] 1504; *Terminal Plaza Corp. v. City and County of San Francisco* (1986) 177 Cal.App.3d 892, 905 []; *Mills v. County of Trinity* (1980) 108 Cal.App.3d 656, 660 []; *County of Fresno v. Malmstrom* (1979) 94 Cal.App.3d 974, 983-984 [].) In general, taxes are imposed for revenue purposes, rather than in return for a specific benefit conferred or privilege granted. (*Shapell Industries, Inc. v. Governing Board* (1991) 1 Cal.App.4th 218, 240 []; *County of Fresno v. Malmstrom, supra*, 94 Cal.App.3d at p. 983 ['Taxes are raised for the general revenue of the governmental entity to pay for a variety of public services.'].)" (*Sinclair Paint*, *supra*, 15 Cal.4th at p. 874.)

As noted in the quote above, in general taxes are imposed for revenue purposes, that is for "the general revenue of the governmental entity to pay for a variety of public services" quoting *County of Fresno v. Malmstrom*, *supra*, 94 Cal.App.3d at page 983.

The majority reasons that, because none of the petitions before us seeks to invalidate known uses of the funds, we can ignore the hardly disputable fact that revenue from the auctions does in fact pay for a broad variety of public services. (Maj. opn. at p. 50.) The majority's position regarding the relevance of the expansive use of the auction proceeds conveniently avoids having to deal with the broad range of uses reflected in this record which uses, by the authorities quoted above, suggest a particular government exaction is a tax. Once again, I think the majority misses the mark.

The use of the revenue from government exactions is a hallmark, probably the most important one, in determining whether that exaction is a tax. Although not alone determinative, the use of the money must be factored into the analytical equation. If the

state treats the revenue as general revenue to be used to pay for public services, that strongly suggests the exaction is a tax.

I would note this court's decision in *Morning Star Co. v. Board of Equalization* (2011) 201 Cal.App.4th 737 (*Morning Star*) wherein, being asked whether a state exaction imposed as part of a comprehensive state overhaul concerning hazardous wastes was a tax or a regulatory fee, we determined that it was a tax relying largely on the use of the revenue. Thus, "[the exaction] is not regulatory because it does not seek to regulate the Company's use, generation or storage of hazardous material but to raise money for the control of hazardous material generally. The charge is therefore a tax. At its most basic level the . . . charge is not a regulatory fee because it is not regulatory. It is monetary." (*Id*. at p. 755.)

While I recognize that *Morning Star* was a tax versus regulatory fee case, its recognition that the use of the funds plays a singular role in the definition of a tax was, and still is, accurate.

The majority's analysis on this point is, roughly, that none of the plaintiffs challenged the use of the funds as those uses are reflected in this record, therefore we need not consider those uses. But, accepting the majority's premise that the plaintiffs *could have* challenged those uses, does their failure to do so mean that we can ignore those uses for judging whether or not the program exacts a tax? I think not; the majority's answer does not meet the challenge because there is nothing in the law that says that plaintiffs *must have* raised such challenges before we are required to consider the use of the money in deciding the question before us. There is a disconnect in the majority's analysis. And I note that while perhaps such individual challenges to expenditures could have been made each time the money was spent, it would make no practical or legal sense to piecemeal the litigation as opposed to challenging the entire program as a tax.

Health and Safety Code section 39712 in pertinent part provides:

"(b) Moneys shall be used to facilitate the achievement of reductions of greenhouse gas emissions in this state . . . and, where applicable and to the extent feasible:

"(1) Maximize economic, environmental, and public health benefits to the state.

"(2) Foster job creation by promoting in-state greenhouse gas emissions reduction projects carried out by California workers and businesses.

"(3) Complement efforts to improve air quality.

"(4) Direct investment toward the most disadvantaged communities and households in the state.

"(5) Provide opportunities for businesses, public agencies, Native American tribes in the state, nonprofits, and other community institutions to participate in and benefit from statewide efforts to reduce greenhouse gas emissions.

"(6) Lessen the impacts and effects of climate change on the state's communities, economy, and environment.

"(c) Moneys appropriated from the fund may be allocated, consistent with subdivision (a), for the purpose of reducing greenhouse gas emissions in this state through investments that may include, but are not limited to, any of the following:

"(1) Funding to reduce greenhouse gas emissions through energy efficiency, clean and renewable energy generation, distributed renewable energy generation, transmission and storage, and other related actions, including, but not limited to, at public universities, state and local public buildings, and industrial and manufacturing facilities.

"(2) Funding to reduce greenhouse gas emissions through the development of state-of-the-art systems to move goods and freight, advanced technology vehicles and vehicle infrastructure, advanced biofuels, and low-carbon and efficient public transportation.

"(3) Funding to reduce greenhouse gas emissions associated with water use and supply, land and natural resource conservation and management, forestry, and sustainable agriculture.

"(4) Funding to reduce greenhouse gas emissions through strategic planning and development of sustainable infrastructure projects, including, but not limited to, transportation and housing.

"(5) Funding to reduce greenhouse gas emissions through increased in-state diversion of municipal solid waste from disposal through waste reduction, diversion, and reuse.

"(6) Funding to reduce greenhouse gas emissions through investments in programs implemented by local and regional agencies, local and regional collaboratives, Native American tribes in the state, and nonprofit organizations coordinating with local governments.

"(7) Funding research, development, and deployment of innovative technologies, measures, and practices related to programs and projects funded pursuant to this chapter."

And, Health and Safety Code, section 39719 provides in part:

"(a) The Legislature shall appropriate the annual proceeds of the fund for the purpose of reducing greenhouse gas emissions in this state in accordance with the requirements of Section 39712.

"(b) To carry out a portion of the requirements of subdivision (a), annual proceeds are continuously appropriated for the following:

"(1) Beginning in the 2015-16 fiscal year, and notwithstanding Section 13340 of the Government Code, 35 percent of annual proceeds are continuously appropriated, without regard to fiscal years, for transit, affordable housing, and sustainable communities programs as following:

"(A) Ten percent of the annual proceeds of the fund is hereby continuously appropriated to the Transportation Agency for the Transit and Intercity Rail Capital

Program created by Part 2 (commencing with Section 75220) of Division 44 of the Public Resources Code.

"(B) Five percent of the annual proceeds of the fund is hereby continuously appropriated to the Low Carbon Transit Operations Program created by Part 3 (commencing with Section 75230) of Division 44 of the Public Resources Code. Funds shall be allocated by the Controller, according to requirements of the program, and pursuant to the distribution formula in subdivision (b) or (c) of Section 99312 of, and Sections 99313 and 99314 of, the Public Utilities Code.

"(C) Twenty percent of the annual proceeds of the fund is hereby continuously appropriated to the Strategic Growth Council for the Affordable Housing and Sustainable Communities Program created by Part 1 (commencing with Section 75200) of Division 44 of the Public Resources Code. Of the amount appropriated in this subparagraph, no less than 10 percent of the annual proceeds, shall be expended for affordable housing, consistent with the provisions of that program.

"(2) Beginning in the 2015-16 fiscal year, notwithstanding Section 13340 of the Government Code, 25 percent of the annual proceeds of the fund is hereby continuously appropriated to the High-Speed Rail Authority for the following components of the initial operating segment and Phase I Blended System as described in the 2012 business plan adopted pursuant to Section 185033 of the Public Utilities Code:

"(A) Acquisition and construction costs of the project.

"(B) Environmental review and design costs of the project.

"(C) Other capital costs of the project.

"(D) Repayment of any loans made to the authority to fund the project.

"(c) In determining the amount of annual proceeds of the fund for purposes of the calculation in subdivision (b), the funds subject to Section 39719.1 shall not be included."

Health and Safety Code section 39713 provides:

"(a) The investment plan developed and submitted to the Legislature pursuant to Section 39716 shall allocate a minimum of 25 percent of the available moneys in the fund to projects located within the boundaries of, and benefiting individuals living in, communities described in Section 39711.

"(b) The investment plan shall allocate a minimum of 5 percent of the available moneys in the fund to projects that benefit low-income households or to projects located within the boundaries of, and benefiting individuals living in, low-income communities located anywhere in the state.

"(c) The investment plan shall allocate a minimum of 5 percent of the available moneys in the fund either to projects that benefit low-income households that are outside of, but within a 1/2 mile of, communities described in Section 39711, or to projects located within the boundaries of, and benefiting individuals living in, low-income communities that are outside of, but within a 1/2 mile of, communities described in Section 39711.

"(d) For purposes of this subdivision, the following definitions shall apply:

"(1) 'Low-income households' are those with household incomes at or below 80 percent of the statewide median income or with household incomes at or below the threshold designated as low income by the Department of Housing and Community Development's list of state income limits adopted pursuant to Section 50093.

"(2) 'Low-income communities' are census tracts with median household incomes at or below 80 percent of the statewide median income or with median household incomes at or below the threshold designated as low income by the Department of Housing and Community Development's list of state income limits adopted pursuant to Section 50093.

"(e) Moneys allocated pursuant to one subdivision of this section shall not count toward the minimum requirements of any other subdivision of this section."

Health and Safety Code section 39711 referenced in section 39713 quoted above provides in relevant part:

"(a) The California Environmental Protection Agency shall identify disadvantaged communities for investment opportunities related to this chapter. These communities shall be identified based on geographic, socioeconomic, public health, and environmental hazard criteria, and may include, but are not limited to, either of the following:

"(1) Areas disproportionately affected by environmental pollution and other hazards that can lead to negative public health effects, exposure, or environmental degradation.

"(2) Areas with concentrations of people that are of low income, high unemployment, low levels of homeownership, high rent burden, sensitive populations, or low levels of educational attainment."

Item 3900-011-3228 of the Budget Act of 2013 (Stats. 2013, ch. 20, § 2, Item 3900-011-3228) provides that the Controller will, upon the order of the Director of Finance, transfer $500,000,000 from the Greenhouse Gas Reduction Fund to the General Fund as a loan.

Health and Safety Code section 39719.1 provides:

"(a) Of the amount loaned from the fund to the General Fund pursuant to Item 3900-011-3228 of Section 2.00 of the Budget Act of 2013, four hundred million dollars ($400,000,000) shall be available to the High-Speed Rail Authority pursuant to subdivision (b).

"(b) The portion of the loan from the fund to the General Fund described in subdivision (a) shall be repaid to the fund as necessary based on the financial needs of the high-speed rail project. Beginning in the 2015-16 fiscal year, and in order to carry out the goals of the fund in accordance with the requirements of Section 39712, the amounts of all the loan repayments, notwithstanding Section 13340 of the Government Code, are

continuously appropriated from the fund to the High-Speed Rail Authority for the following components of the initial operating segment and Phase I Blended System as described in the 2012 business plan adopted pursuant to Section 185033 of the Public Utilities Code:

"(1) Acquisition and construction costs of the project.

"(2) Environmental review and design costs of the project.

"(3) Other capital costs of the project.

"(4) Repayment of any loans made to the authority to fund the project."

Thus, the revenues generated by the auctions can be used by the state for, at least:

(1) funding to maximize economic, environmental and public health benefits to the state;

(2) funding to foster job creation by promoting in-state greenhouse gas emissions projects;

(3) funding to improve air quality;

(4) funding to direct investment in disadvantaged communities;

(5) funding to provide opportunities for businesses, public agencies, Native American tribes and others to participate in and enjoy the benefits of the reduction of greenhouse gases;

(6) funding to lessen the impacts of climate change on the state's communities, economy and environment;

(7) funding to promote energy efficiency, renewable energy generation, distributed renewable energy generation, transmission and storage and other related actions at, among other places universities, state and local public buildings, and industrial and manufacturing abilities;

(8) funding to develop state-of-the-art systems to move goods and freight, advanced technology vehicles and vehicle infrastructure, advance biofuels, and low-carbon transportation;

(9) funding to reduce greenhouse gas emissions associated with water use and supply, land and natural resource conservation and management, forestry, and sustainable agriculture;

(10) funding strategic planning and development of sustainable infrastructure projects including transportation and housing;

(11) funding for in-state diversion of municipal solid waste through waste reduction, diversion, and re-use;

(12) funding to lower emissions through investments in programs implemented by local and regional agencies and others coordinating with local governments;

(13) funding for research, development, and deployment of innovative technologies, measures and practices;

(14) a continuous appropriation of 10 percent of the proceeds from the auction fund for the transit and intercity rail;

(15) a continuous appropriation of 5 percent for low carbon transit programs;

(16) a continuous appropriation of 20 percent for the affordable housing and sustainable communities program; and

(17) a continuous appropriation of 25 percent to high-speed rail.

To the obvious broad use of the auction revenues, and in order to avoid having to consider the effect of the use of the proceeds on the question before us, respondents argue that the uses of the proceeds are merely advancing the intent of the program, that is, to reduce greenhouse gases and are, therefore, used more narrowly than general revenue funds.

Asked during oral argument what the expenditures on affordable housing had to do with emissions, respondents said the affordable housing was to be built near places of employment and transportation hubs to encourage public transportation and reduce greenhouse gas emissions accordingly. Following that line of argument would probably allow the proceeds to be spent on education on the theory that a better educated populace

on the question of greenhouse gas emissions would be more likely to seek to reduce those emissions in the future.

Respondents' argument conflates funding of the *costs* of administering the auction program with funding of the *goals* of cap-and-trade.

And here is the magic, the sleight of hand, of respondents' argument. Since an argument can be, and has been, made that nearly all human activity (and, apparently, some animal activity) increases greenhouse gases, *voila´*, auction funds can be used to address nearly any human activity without being considered a tax that generates general revenue, thus avoiding the prohibitions of Proposition 13, so long as the use of the funds has any tenuous connection to the reduction of greenhouse gases, connections that can always be found if one reaches far enough.

Howard Jarvis Taxpayers Assn. v. County of Orange (2003) 110 Cal.App.4th 1375 (*Howard Jarvis*) is instructive. There, the City of Huntington Beach amended its city charter effective July 1978 (1) to mandate the city's participation in a retirement system, (2) gave the city council discretion to establish reasonable compensation and fringe benefits as appropriate and (3) established an excise tax on real property to fund the retirement program.

After that, and after the passage of Proposition 13, the city added to those city retirement benefits and collected increased excises tax to fund those additional benefits. A taxpayer brought suit contending the excise tax, to the extent it funded additional retirement benefits granted after July 1978, violated Proposition 13.

The city argued there was no violation because the 1978 city charter language gave the city a right to levy the excess tax for virtually anything so long as the costs the excess tax funded related to city employee retirement benefits "including 'giv[ing] a house . . . to every employee as they retire . . . [¶] . . . ' " (*Howard Jarvis*, *supra*, 110 Cal.App.4th at p. 1383.)

The court disagreed and observed that the city's argument would eviscerate Proposition 13 adding: "Under City's interpretation, it would have virtually unfettered power to spend whatever sum of money and levy excess taxes to obtain the revenue, as long as the expenditure was designated 'retirement.' This was one of the very things Proposition 13 was enacted to combat." (*Howard Jarvis*, *supra*, 110 Cal.App.4th at p. 1384.)

So too here. The state's argument gives it "virtually unfettered" power to spend whatever money the auction program raises so long as the purpose of the money is to a theoretical reduction of greenhouse gases.

Despite the practically unlimited use of the auction program's revenues for state projects, the state seeks to end-run the provisions of Proposition 13 by labeling the wide and varied uses of that revenue as uses that address (not necessarily reduce), however tangentially, greenhouse gas emissions. The majority's "decoupling" of the question of the use of the revenues generated by the auction program is, to say the least, unconvincing.

IV

The Auction Program as a Tax

It needs to be noted that the auction program revenues are not necessary to the funding of the cap-and-trade program in general or the auction program in particular.

Health and Safety Code section 38597 says:

"The [Air Resources Board] may adopt by regulation, after a public workshop, a schedule of fees to be paid by the sources of greenhouse gas emissions regulated pursuant to this division, consistent with Section 57001. The revenues collected pursuant to this section, shall be deposited into the Air Pollution Control Fund and are available upon appropriation, by the Legislature, for purposes of carrying out this division."

Pursuant to the statutory authority granted by section 38597, the Air Resources Board adopted section 95200 (Cal. Code of Regs., tit. 17, §§ 95200 & 95203) which provides:

"The purpose of this subarticle is to collect fees to be used to carry out the California Global Warming Solutions Act of 2006 (Stats. 2006; Ch. 488; Health and Safety Code sections 38500 et seq.), as provided in Health and Safety Code section 38597."

The Air Resources Board also adopted section 95203 which further provides:

"(a) Total Required Revenue (TRR).

"(1) The Required Revenue (RR) shall be the total amount of funds necessary to recover the costs of implementation of AB 32 program expenditures for each fiscal year, based on the number of personnel positions, including salaries and benefits and all other costs, as approved in the California Budget Act for that fiscal year.

"(2) The RR shall also include any amount required to be expended by ARB in defense of this subarticle in court.

"(3) If there is any excess or shortfall in the actual revenue collected for any fiscal year, such excess or shortfall shall be carried over to the next year's calculation of the Total Revenue Requirement. If ARB does not expend or encumber the full amount authorized by the California Legislature for any fiscal year, the amount not expended or encumbered in that fiscal year shall be carried over and deducted from the next year's calculation of the Total Revenue Required.

"(4) The annual Total Revenue Requirement is equal to the annual RR adjusted for the previous fiscal year's excess or shortfall amount, as provided in subsection (a)(4)." (Cal. Code of Regs., tit. 17, § 95203.)

It would thus appear that auction proceeds are not intended, or, more importantly needed, to pay for the costs of implementation of Assembly Bill No. 32.

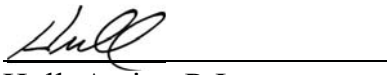
The only reasonable conclusion one can reach is that the auction proceeds are intended to, and do, generate general revenue to the state of California. It is apparent that by respondent's express acknowledgement, this revenue may be used for any program that, arguably, might reduce greenhouse gases. But, as noted above, the effort to reduce greenhouse gases essentially encompasses all aspects of human activity and thus the use of the auction revenues by the state is virtually unlimited. Thus, the purchase of auction credits which, on this record, are imposed on Morning Star and businesses similarly situated, creates revenue to pay for a nearly unlimited variety of public services. (See, *County of Fresno v. Malmstrom*, *supra*, 94 Cal.App.3d at p. 983 ["Taxes are raised for the general revenue . . . to pay for a variety of public service"].) This is a tax increase on businesses knowingly structured to avoid the provisions of Proposition 13.

Accepting the argument that there is social value to the cap-and-trade program, questions of the social value of any given law are the province of the Legislature and the Governor. It is the province of the courts to decide questions of law and the constitutionality of the laws and to do so based solely on the law regardless of the social value of the challenged legislation.

My colleagues and I have worked diligently on what is obviously a complex and difficult appeal. They, in good faith, have reached a conclusion different than mine. I simply cannot agree with their analysis or their result.

Given that the auction program is, for Morning Star and businesses that are similarly situated, compulsory if they are to remain in business in California and that the auction program creates, in actual effect, general revenue, I can only conclude that the program is a tax in "something else" clothing and that the auction program, not having been passed by a 2/3 vote in the Legislature, violates Proposition 13.

I would reverse the judgment.



Hull, Acting P.J.

IN THE

Court of Appeal of the State of California

IN AND FOR THE

THIRD APPELLATE DISTRICT

MAILING LIST

Re: California Chamber of Commerce et al. v. State Air Resources Board et al.
C075930
Sacramento County
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