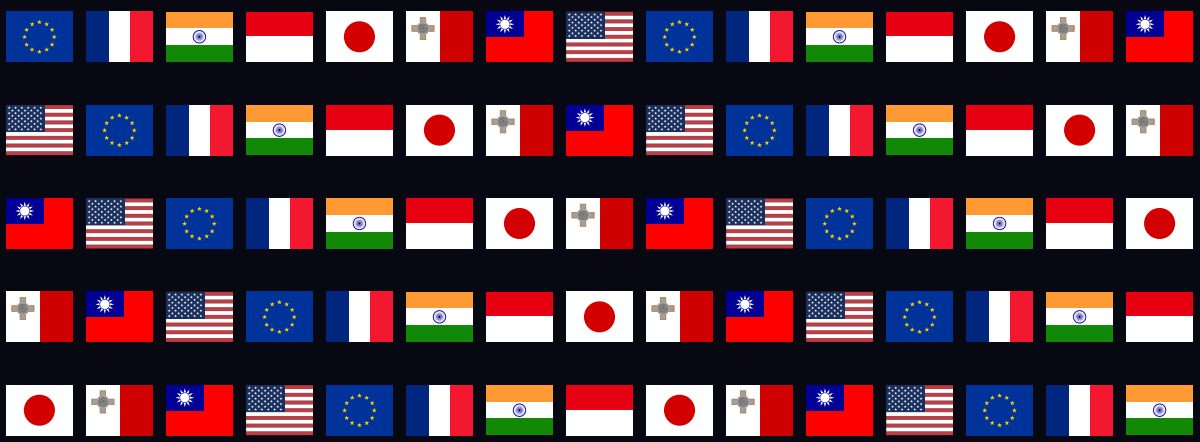
CLIMATE REGULATION

USA



LEXOLOGY
Getting The Deal Through

Consulting editor
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Climate Regulation

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Quick reference guide enabling side-by-side comparison of local insights, including the main climate regulations, policies and authorities; national emission levels, limits and emission reduction projects; emission allowances and trading; energy and non-energy sector regulation; renewable energy consumption, policy and general regulation, including carbon capture and storage; climate matters in M&A transactions; and recent trends.

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MAIN CLIMATE REGULATIONS, POLICIES AND AUTHORITIES

International agreements

Do any international agreements or regulations on climate matters apply in your country?

The United States is a party to the Paris Agreement. The United States signed the Paris Agreement in April 2016 and later ratified it, committing, alongside nearly 200 other countries, to limit global warming to 1.5°C above pre-industrial levels. In June 2017, the Trump administration announced that the United States would pull out of the Paris Agreement, and the United States did briefly withdraw from the Paris Agreement on 4 November 2020; however, following the election of President Joe Biden, the United States announced that it would re-join the Paris Agreement. President Biden used executive authority to re-enter the Agreement, which took effect on 19 February 2021. In April 2021, the United States submitted a new ' Intended Nationally Determined Contribution' (NDC) , committing to reduce economy-wide greenhouse gas (GHG) emissions by 50–52 per cent below 2005 levels in 2030.

The United States is also a party to the Vienna Convention for the Protection of the Ozone Layer and a protocol to that treaty, the Montreal Protocol on Substances that Deplete the Ozone Layer, since its finalisation in 1987. Under the Montreal Protocol and Title VI of the US Clean Air Act (CAA) , some ozone-depleting substances (ODS), such as chlorofluorocarbons, have now been phased out except for a small quantity for uses agreed upon as 'essential'. Hydrochlorofluorocarbons (HCFCs) are currently being phased down through incremental decreases in consumption and production, with a complete phase-out planned by 2030. On 15 October 2016, at the 28th Meeting of the Parties in Kigali, the parties agreed to amend the Montreal Protocol, expanding its scope to include certain hydrofluorocarbons (HFCs). The US has now adopted the agreement. With a strong bipartisan alliance and support from both environmental groups and industry, the US Senate voted 69-27 to ratify the Kigali Amendment on 21 September 2022.

The Environmental Protection Agency (EPA) and the Federal Aviation Administration (FAA) traditionally have worked with the International Civil Aviation Organization (ICAO) to establish aircraft emissions standards. The United States participates in the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), to which the US is committed under Annex 16, Volume IV of the Convention on International Civil Aviation, more commonly known as the Chicago Convention. Under CORSIA, all ICAO member states whose aircraft operators undertake international flights must develop a monitoring, reporting, and verification system for CO2 emissions from international flights subject to CORSIA. CORSIA eventually requires offsetting new emissions (above the baseline year of 2019) from covered international flights beginning in 2024, with a pilot phase from 2021–2023. In January 2021, EPA finalised CAA emission standards with domestic limits that mirror the ICAO's standards (86 Fed Reg 2,136 (11 January 2021)). EPA explained that aligning domestic standards with international standards would bring 'substantial benefits for future international cooperation' on aircraft emissions, which the agency deemed 'key for achieving worldwide emission reductions' (86 Fed Reg 2,144–45). Now that EPA has promulgated this rule, CAA section 232 requires the FAA to issue regulations enforcing and applying these standards when certifying engines for US aircraft manufacturers (87 Fed Reg 36,076 (June 15, 2022)).

On 11 November 2014, the United States struck a bilateral agreement with China, under which both nations seek to significantly reduce GHG emissions. On 17 April 2021, the Special Envoys from the US and China released a joint statement after meeting to discuss the climate crisis. The US-China Joint Statement Addressing the Climate Crisis details the two countries' commitment to cooperate in multilateral processes. The US-China relationship, however, is in a constant state of flux. Special Envoy John Kerry travelled to China for four days of climate talks in July 2023. The Biden Administration seems hopeful that new discussions with China will engender productive results, though the precise implications of such talks remain unclear.

In June 2016, the United States, Mexico, and Canada announced a joint goal of achieving 50 per cent 'clean power' generation across all three countries and reducing methane emissions from the oil and gas sector by 40 per cent to 45 per cent by 2025. On 23 February 2021, the Biden administration released the Roadmap for a Renewed US-Canada

Partnership , a statement in which the Biden administration and Canadian Prime Minister Trudeau set forth goals to accelerate climate ambitions. On 10 June 2022, the Biden administration released a joint statement on US, Mexico, and Canada cooperation, reaffirming their collective commitment to take action regarding the climate crisis. The 10th North American Leaders' Summit, held on 9-10 January 2023, further reaffirmed this goal: the Declaration of North America commits the three countries to both achieving their respective 2030 NDCs under the Paris Agreement and continuing to implement their 2021 joint commitments. The three countries also pledged to protect biodiversity in partnership with Indigenous Peoples, meeting the '30 by 30' target adopted at the UN Biodiversity Conference under the Convention on Biological Diversity (CBD) at COP 15. Note, however, that the US is not a party to the CBD, although it actively participated in the COP 15 discussions.

Law stated - 01 September 2023

International regulations and national regulatory policies

How are the regulatory policies of your country affected by international regulations on climate matters?

Although the United States lacks a binding comprehensive policy to regulate GHG emissions at the national level, the Biden administration has expressed its alignment with the Paris Agreement and committed to both achieving a 50–52 per cent reduction in GHG emissions by 2030 and reaching net-zero emissions by 2050. In January 2021, President Biden signed Executive Order 14008 on Tackling the Climate Crisis at Home and Abroad , which reaffirmed US commitment to a wide range of international groups and treaties addressing the climate crisis. These executive actions are currently leading to both regulatory changes and new legislative proposals aimed at further regulation of GHG emissions in the US as well as the creation of incentives for voluntary GHG emissions reductions and carbon sequestration. Additional regulation and legislation are focused on high-potency GHG emissions, transportation, and the energy sector in the short-term, while incentive programmes are generally focused on the transportation sector, renewable energy, and carbon sequestration. Separately, financial regulators in the United States are considering additional regulations related to GHG risks and disclosures and may take into account parallel regulatory processes in the EU and elsewhere as they develop new US standards.

In addition, the EU's newly approved Carbon Border Adjustment Mechanism (CBAM), taking effect in October 2023, has triggered trade discussions between the US and the EU. The CBAM will impose a fee on certain goods imported into the EU, based on carbon intensity. In response, the US has requested an exemption for its steel and aluminium exports; however, the EU is unlikely to agree to the American request given such a move would violate WTO rules. The EU CBAM already is spurring efforts in the US to better quantify emissions from covered sectors, and also may spur further regulation under existing frameworks (such as the CAA).

Law stated - 01 September 2023

Main national regulatory policies

Outline recent government policy on climate matters.

Within hours of his inauguration on 20 January 2021, President Biden acted to bring the United States back into the Paris Agreement and signed Executive Order 13990, 'Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis' . Among other things, that order requires a review of actions taken under the prior Trump administration. Several states challenged Order 13990, including provisions aimed at reinstating use of the 'social cost of carbon' metrics in calculating the costs and benefits of federal agency decisions. The federal

government now refers to the 'social cost of carbon' as encompassing three different metrics, collectively referred to as the ‘social cost of greenhouse gases’ or ‘SC-GHG’. Following a flurry of litigation, on 5 April 2023, the US Court of Appeals for the Fifth Circuit dismissed challenges to the Biden administration’s continued use of SC-GHG estimates. In September 2022, in the context of a rule targeting methane emissions from the oil and gas sector, EPA issued a proposal that would sharply increase SCC metrics and continues to weigh public comment on adjustments to the SC-GHG figures.

One week after gaining office, the Biden administration hosted ‘climate day’ at the White House, where President Biden described a ‘government-wide’ focus on climate change issues and signed Executive Order 14008, ‘Tackling the Climate Crisis at Home and Abroad’ . Louisiana and other states promptly challenged aspects of the Executive Order . Despite various challenges, the Biden Administration’s executive orders aimed at climate change generally remain in effect and continue to guide the administration’s aggressive actions on climate change.

President Biden has taken other actions on climate change, such as assembling a team at the White House and at EPA with deep experience of climate change and GHG policy. In May 2021, President Biden issued an E xecutive Order on Climate-Related Financial Risk , which called for the development of a US government-wide climate risk strategy, published in October 2021. In addition to setting a 2030 GHG emissions reduction target under the Paris Agreement, President Biden has announced the objective of achieving net-zero GHG emissions for the United States by 2050, both of which are driving additional legislative proposals and regulatory actions under the Biden administration.

On 21 April 2023, President Biden also issued Executive Order 14096, ‘Revitalizing Our Nation's Commitment to Environmental Justice for All’ , in which climate justice considerations feature prominently. The order expressly orders federal agencies to consider all impacts of their actions, 'including those related to climate change', and to identify opportunities for 'climate mitigation, adaptation, and resilience.’

In the absence of national legislation broadly regulating GHG emissions, individual US states and federal agencies have historically implemented climate policy under pre-existing regulatory authority, primarily by promulgating regulations and implementing sector-based actions under the CAA and parallel state authorities. For example, EPA has promulgated regulations aimed at GHG reductions from various larger sources of GHG emissions, including: motor vehicles and other mobile sources, such as heavy-duty vehicles, aircraft, and locomotives; large stationary sources under the Prevention of Significant Deterioration (PSD) and Title V operating permit programmes; methane emissions from the oil and gas sector and certain solid waste landfills; high-potency GHGs; and other sectors or emissions sources.

In recent years, EPA began to regulate HFCs through two CAA Title VI programmes: the refrigerant management programme under section 608 of the CAA and the Significant New Alternatives Policy (SNAP) programme under section 612 of the CAA. The refrigerant management programme was extended to HFCs pursuant to a 2016 rule by EPA. Since that time, SNAP rules have seen various permutations and challenges, ultimately resulting in the vacature of some requirements. Several states promulgated replacement regulations in light of these developments, with California leading the charge to replace or bolster SNAP rules and impose even more stringent requirements.

In December 2020, Congress passed the American Innovation and Manufacturing Act (AIM Act), a law that impacts the regulation of HFCs in the United States in three significant ways:

- requiring EPA to promulgate a rule by September 2021 initiating an incremental phasedown on the production and import of HFCs by 85 per cent over the next 15 years;
- authorising EPA to promulgate new refrigerant management and leak repair regulations for HFCs; and
- authorising EPA to promulgate new technology transition regulations that restrict the use of HFCs in various applications to potentially replace and expand the vacated SNAP rules.

In May 2021, EPA published its first rule pursuant to the AIM Act to begin the phasedown of the manufacture and

import of HFCs in 2022 through an allowance-based trading programme. Industry challenged the rule in court; however, on 20 June 2023, the Court of Appeals for the District of Columbia unanimously upheld EPA's authority to regulate HFC blends as part of its phasedown programme. At the same time, this decision vacated EPA's prohibition on single-use canisters, as well as certain cylinder tracking measures, which EPA claimed it had adopted in an effort to address smuggling activity. But while those provisions were vacated, EPA's broader authority to regulate HFC blends remains intact following the Fifth Circuit decision.

EPA has also received petitions from various environmental groups, states, and industry groups to promulgate refrigerant management and technology transition rules under the AIM Act. The agency granted some of these petitions and is currently reviewing others. On 15 December 2022, EPA published a proposed rule to address the AIM Act's technology transition requirements (87 Fed Reg 76738). The rule would phase out the use of certain HFCs under the AIM Act while addressing issues raised by the petitions the EPA granted. The comment period ended on 30 January 2023, and the rule is now under EPA review with the goal of finalising a rule by the AIM Act deadline of October 2023.

Law stated - 01 September 2023

Main national legislation

Identify the main national laws and regulations on climate matters.

In November 2021, Congress passed a trillion-dollar infrastructure bill that includes numerous provisions aimed at climate change, including additional funding for electric vehicles (EVs) and EV infrastructure, improvements to electricity grids, and other infrastructure improvements aimed at reducing GHG emissions. EPA has also pushed forward major climate rules, including a proposal for new GHG emissions standards on passenger and commercial vehicles for which the EPA is reviewing a barrage of comments as of July 2023.

In addition, a large spending package, the Inflation Reduction Act (IRA), was enacted on 16 August 2022 and contains numerous climate change provisions. The IRA represents one of the most significant actions by the federal government on climate change. In particular, IRA programmes include: new or expanded funding to reduce GHG emissions, including methane and HFCs; encourage a domestic supply chain for electric vehicles and energy storage systems; promote carbon sequestration and climate resiliency in agricultural practices; expand offshore energy production, for both wind and fossil energy; and expand federal support for biofuels. The IRA also creates and expands upon dozens of tax credits for renewable energy, electric vehicles, and electric transmission.

The IRA is a US$370 billion climate and tax package that includes additional incentives for renewable energy, carbon capture, electric vehicles, and other climate measures. The measure will enable the United States to cut GHG emissions by 40 per cent below 2005 levels by 2030, a significant step towards achieving the US NDC of a 50 per cent reduction from 2005 by 2030. Among other things, the IRA contains the following measures aimed at bolstering GHG reductions in the United States:

- expansion of offshore leasing for wind energy, although with parallel provisions requiring oil and gas leases to be offered over large tracts of the outer continental shelf as a condition of making wind leases available;
- air emissions: the IRA includes major provisions aimed at reducing GHG emissions, such as HFC refrigerants;
- methane: the IRA substantially increases support for EPA's existing efforts to address methane emissions and also creates a new system of fees that would impose charges on owners of oil and gas infrastructure if methane emitted from that infrastructure exceeds specified thresholds;
- agriculture and forestry: the IRA includes several programmes aimed at reducing GHGs from agriculture, promoting soil and forestry-based carbon sequestration, and improving the climate resiliency of farms and forests;
- alternative fuels: the IRA contains substantially expanded federal support for biofuels, sustainable fuels,

hydrogen as a fuel and sustainable aviation fuels; and

- manufacturing: the IRA provides support for decarbonisation of GHG-intensive industries through measures like energy efficiency, transition to low-carbon inputs and use of materials that capture large volumes of carbon during manufacturing.

The IRA also includes major revisions to the nation's system of tax credits for renewable energy production, carbon capture and sequestration, and advanced manufacturing. It will extend the existing system of Investment Tax Credits and Production Tax Credits, and it will maintain or increase tax credits available for projects that are built using labour that is paid prevailing wages with qualifying apprenticeship programmes. The IRA also creates several new tax credits, such as for renewable aviation fuels and clean hydrogen. Finally, after 2025, the IRA will phase out the existing system of credits in favour of a new technology-neutral system that would award credits for any technology that produces carbon-free energy and keep that system in place until the nation's electricity sector reduces its GHG emissions to 25 per cent of 2022 levels.

On 14 June 2023, the US Department of the Treasury and the IRS released guidance on provisions of the IRA to expand the reach of these clean energy tax credits and help build projects more quickly and affordably. This guidance will allow non-profits and others with low tax liability to obtain cash rather than tax credits they might not otherwise we able to fully utilise through a system known as 'direct pay.' Direct pay mechanisms may accelerate deployment of related tax credits, particularly to municipalities, schools, tribes, non-profits, and other institutions seeking to deploy renewable energy.

The IRA represents a major expansion of US climate policy. While some of the provisions within the IRA will become effective immediately, many will require implementation through agency rulemaking and other actions. As a result, it may be several years before the full impact of the IRA is apparent.

Law stated - 01 September 2023

National regulatory authorities

Identify the national regulatory authorities responsible for climate regulation and its implementation and administration. Outline their areas of competence.

EPA is the primary national regulatory authority with responsibility for the regulation of GHG emissions. EPA's authority includes the promulgation and enforcement of CAA standards for GHG emissions for both mobile and stationary sources, GHG reporting programmes, adaptation to a changing climate, and protection of drinking water aquifers under the federal Safe Drinking Water Act with respect to underground injection of CO2 and other materials.

The Council on Environmental Quality (CEQ) is charged with ensuring federal agencies comply with the National Environmental Policy Act (NEPA) in assessing the potential environmental impacts of major federal actions. Consideration of climate change impacts in NEPA analyses continues to be primarily guided by court decisions on agency rulemaking processes, land use planning documents, leasing decisions, and individual project permitting decisions, most often in the energy or transportation contexts. These litigation outcomes have not been uniform, but generally trend toward requiring greater consideration of GHG emission impacts, including downstream effects further removed from the immediate federal action. In July 2020, CEQ amended the nearly 40-year-old regulations implementing NEPA applicable across the federal government. Those regulations were challenged in litigation, including allegations that CEQ limited the scope of cumulative impacts analysis including climate change. However, most of these lawsuits have been stayed due to President Biden's regulatory freeze, which directed federal agencies to review rules promulgated under the Trump administration. In February 2021, CEQ issued a notice rescinding the 2019 draft guidance document that gave federal agencies significant discretion over how they should consider GHG

emissions under NEPA. The Biden administration is reconsidering the 2020 regulatory amendments in a two-step process. In April 2022, CEQ restored some of the provisions modified in 2020, including changes to streamline the NEPA review process. CEQ intends to make 'broader changes' to NEPA in Phase 2, including in environmental justice and public participation. The Biden administration also rescinded the 26 June 2019 CEQ draft guidance to address how agencies should consider GHG emissions in the NEPA process and released new interim guidance in January 2023 that builds upon CEQ's 2016 guidance on GHG emissions and climate change. While nonbinding, the 2023 guidance encourages agencies to consider and disclose both direct and indirect impacts of their actions on GHG emissions and climate change and to consider climate-friendly alternatives and mitigation measures.

The CEQ also regulates and maintains the Climate and Economic Justice Screening Tool, which helps track communities in the US considered disadvantaged because they live in areas that experience significant burdens, including ones related to climate change.

In addition, President Biden established a President's Council of Advisors on Science and Technology and a Task Force on Scientific Integrity. The Environmental Justice Subcommittee of the National Science and Technology Council, created by President Biden's April 2023 Executive Order 14096, works with the CEQ and develops biennial research plans to promote environmental and climate justice, including cumulative impacts and anticipated climate change impacts.

Additional federal agencies are also responsible for programmes and regulations related to climate change: the Department of the Treasury and the Internal Revenue Service play an increasingly important role due to the proliferation of GHG tax incentives, such as 45Q for carbon sequestration; meanwhile, the Securities and Exchange Commission (SEC) has proposed a rule to standardise GHG disclosures for investors in March 2022 as part of its emphasis on ESGs. Other relevant agencies include the Department of Energy; Department of Agriculture (USDA); Department of the Interior; Department of State; Department of Commerce; and National Aeronautics and Space Administration (NASA).

Law stated - 01 September 2023

GENERAL NATIONAL CLIMATE MATTERS

National emissions and limits

What are the main sources of emissions of greenhouse gases (GHG) (or other regulated emissions) in your country and the quantities of emissions from those sources? Describe any limitation or reduction obligations. Do they apply to private parties in your country?

The most recent comprehensive GHG emissions data for the United States is EPA's 'Inventory of US Greenhouse Gas Emissions and Sinks' , which covers the period from 1990 to 2021. Mandatory GHG reporting began in 2011 for certain industries and in 2012 for others. As a result, the Environmental Protection Agency (EPA)'s 2023 report includes robust GHG emissions data from various sectors of the US economy. In 2021, total gross US GHG emissions were 5,586 million metric tons of carbon dioxide equivalent (MMT CO2 Eq) after accounting for sequestration from the land sector. The main sources of GHG emissions include the electricity generation, transportation, industrial, agricultural and commercial sectors. Complete figures by sector are available in EPA's 2023 GHG Inventory .

Another valuable resource is the US Energy Information Administration, which provides detailed analyses of CO2 emissions by state, by fuel, and by sector. Numbers are updated annually, with the next update anticipated for October 2023.

GHG emissions standards apply to private commercial entities to the extent that the entity is subject to regulation by the relevant national or state authority. As noted above, there is no national GHG emissions legislation or regulation; rather, sources currently are regulated under the US Clean Air Act (CAA) and other federal laws, and by state laws.

Law stated - 01 September 2023

National GHG emission projects

Describe any major GHG emission reduction projects implemented or to be implemented in your country. Describe any similar projects in other countries involving the participation of government authorities or private parties from your country.

At the federal level, GHG emission reductions are primarily driven by US CAA regulation, which does not currently contemplate GHG emissions reduction projects or carbon offsets as compliance mechanisms. Certain other programmes provide incentives for carbon sequestration and other GHG removals. EPA also implements strategies to help organisations reduce their GHG emissions, including the ENERGY STAR programme and Green Power Partnership. At the state level, GHG emissions reductions are driven by a range of policies, including state and regional cap and trade programmes, renewable power requirements, low carbon fuel programmes, energy efficiency programmes, and a range of other sector-specific measures adopted under state law.

Section 45Q of the Tax Code provides tax credits for capturing and sequestering carbon oxides that would otherwise escape to the atmosphere, and the Department of Agriculture (USDA) also implements various programmes to support and incentivise carbon sequestration and production of 'Climate-Smart Commodities' in the agricultural and forestry sectors. The 45Q tax credit programme and USDA incentive programmes have spurred innovation and the development of various GHG removal or sequestration actions in the United States. In 2022, the US Congress expanded 45Q, reducing capacity requirements for eligible projects. 45Q now provides up to US$ 85 per tonne of CO2 permanently stored and increased credit amounts for direct air capture projects to US$ 180 per tonne of CO2. Private carbon offset markets have also spurred development of a wide array of carbon sequestration projects and programmes in the forestry and agriculture sectors, among others. The Inflation Reduction Act will substantially expand tax credits for carbon sequestration.

Law stated - 01 September 2023

DOMESTIC CLIMATE SECTOR

Domestic climate sector

Describe the main commercial aspects of the climate sector in your country, including any related government policies.

Commercial climate business in the United States is fragmented, largely owing to the lack of comprehensive national climate change regulation and the lack of a single registry or exchange for the trading of GHG allowances, offsets, and other instruments. Carbon offset project development is rapidly accelerating, and the generation of GHG offset or reduction credits has increased significantly as entities seek to comply with California's cap-and-trade programme and to fulfil voluntary GHG reduction commitments. At the same time, US financial regulators, including the Commodity Futures Trading Commission and the SEC, are revisiting their regulation and oversight of environmental commodities markets, including carbon offsets. In parallel with efforts to increase regulatory scrutiny, a range of voluntary efforts are presently aimed at increasing transparency and quality in the global carbon markets (such as the Integrity Council for the Voluntary Carbon Market (ICVCM), and US carbon projects and carbon buyers are reacting with a trend towards higher-quality carbon reduction projects and procurement of high quality carbon reduction assets.

Law stated - 01 September 2023

GENERAL GHG EMISSIONS REGULATION

Regulation of emissions

Do any obligations for GHG emission limitation, reduction or removal apply to your country and private parties in your country? If so, describe the main obligations.

Various national, regional, and state programmes exist in the United States to regulate GHG emissions. The main programmes are regulations issued under the US Clean Air Act (CAA), federal motor vehicle fuel economy standards, and cap-and-trade programmes in California, Washington, and the Regional Greenhouse Gas Initiative (RGGI) between the Northeast states. California and Oregon also have Low Carbon Fuel Programs (LFCS), which govern the carbon intensity of certain fuels, while Washington has adopted a similar Clean Fuel Standard.

In April 2023, California also obtained two waivers from the Environmental Protection Agency (EPA) to establish stricter air quality standards for motor vehicles, specifically heavy-duty vehicles and engine emission standards, under CAA section 209. The EPA is still reviewing a third requested waiver as of this writing. Historically, California's waivers have allowed the state to set stricter standards for motor vehicle emissions, which other states may then adopt instead of the federal ones. In fact, DC, California, and 14 other states signed a memorandum of understanding in 2020, ledging a pathway to zero-emission vehicles by 2050. These most recent waivers have, however, experienced some pushback: in June 2023, 19 Republican-led states challenged EPA's waiver grant to California's Advanced Clean Trucks Rule.

The Biden administration's 'whole-of-government' approach to climate change is having an enormous impact on US GHG policy, as is the Biden administration's goal of net-zero GHG emissions for the United States by 2050. Individual states are also driving significant changes in US climate policy. At present, 14 states have binding net-zero GHG emissions targets (typically by 2045 or 2050) and another 11 have similar non-binding targets. Another eight states have binding GHG emissions reduction requirements in the 80–95 per cent range. Collectively, these state and federal policy pronouncements are beginning to lead to significant changes in both voluntary and mandatory GHG reduction and regulation programmes around the country across numerous sectors.

Law stated - 01 September 2023

GHG emission permits or approvals

Are there any requirements for obtaining GHG emission permits or approvals? If so, describe the main requirements.

Certain stationary sources are required to obtain CAA Title V operating permits and prevention of significant deterioration (PSD) permits for GHG emissions. Under the CAA's 'cooperative federalism' approach, most states manage GHG permitting in conjunction with any applicable state laws or programmes. Typically, any applicable New Source Performance Standards GHG emissions limits will be incorporated into a facility's Title V operating permit. When obtaining permits under the PSD programme, sources must evaluate available emissions reduction options to determine the 'best available control technology' for that facility, which are made on a case-by-case basis considering energy, environmental and economic impacts, and other costs. Over time, technological advancements increase the degree of attainable emissions reductions. GHG considerations also become relevant in certain permitting actions, including those under NEPA and analogous state laws, which may require permit applicants to take into account GHG emissions related to a specific project.

Several market-based permit systems also exist: California and Washington now have state-level cap-and-trade programmes requiring major emitters to obtain permits to release GHGs, and 11 states participating in the RGGI have a cap-and-trade programme covering the electricity sector. New York and Oregon also are developing cap-and-trade

programmes.

Law stated - 01 September 2023

Oversight of GHG emissions

How are GHG emissions monitored, reported and verified?

EPA's mandatory GHG Reporting Rule requires reporting of GHG data and other relevant information for facilities in 41 source categories. EPA compiles reported GHG emissions to create its annual GHG inventory for the United States. Compliance for covered sources is mandatory and administrative. Civil or criminal penalties may apply for violations. Several states have also implemented GHG reporting rules, and the reporting thresholds differ by state. Entities must comply with both federal and state GHG reporting requirements, if applicable. According to EPA, the GHG Reporting Rule covers over 8,000 US facilities.

In 2010, the SEC issued interpretive guidance regarding required disclosures by companies of their climate change-related risks. On 4 March 2021, the SEC announced the creation of a Climate and ESG Task Force within the Division of Enforcement. Although the 'materiality' standard still currently provides the threshold for required disclosures in the United States, in 2021, the SEC also issued a specific request for comments regarding whether changes are needed to its GHG disclosure rules. In May 2022, the SEC proposed new disclosure and reporting requirements for public companies that would significantly expand current climate risk reporting requirements while also imposing new requirements related to GHG and ESG disclosures.

New requirements would be phased in over several years, with large companies required to begin disclosure in 2023 and other firms starting in 2024. The most controversial aspects of the proposed rule are the requirements of Scope 3 emissions disclosure and the financial statement disclosures. The proposal did integrate some flexibility around Scope 3 emissions, including an exemption for smaller reporting companies. As of this writing, this SEC proposed rule may not be finalised until fall 2023, or later. Even if the SEC final rule is challenged in court, however, some US companies will likely still have to comply with certain Scope 3 emission disclosures because similar regulations are being promulgated in the EU and at the state level.

Environmental groups, investors, and shareholders also are increasingly driving changes to climate risk reporting by companies in the United States. Companies may now face dozens or even hundreds of requests for data and information on how they assess and disclose climate-related risks, and there has been increased adoption of third-party disclosure standards, including those published by the Task Force for Climate-Related Financial Disclosures and the Sustainability Accounting Standards Board.

The US Federal Trade Commission (FTC) appears poised to significantly refresh its guidelines for the Use of Environmental Marketing Claims (Green Guides). On 2 July 2021, the FTC published its 10-year regulatory review schedule, announcing an agency review of the Green Guides in 2022. The FTC then published a proposed rule revising the Green Guides on 20 December 2022 and accepted public comments until spring 2023. This action is in line with the global trend toward more scrutiny of claims and substantiation, including actions within the European Union requiring enhanced substantiation for environmental claims.

Law stated - 01 September 2023

GHG EMISSION ALLOWANCES (OR SIMILAR EMISSION INSTRUMENTS)

Regime

Is there a GHG emission allowance regime (or similar regime) in your country? How does it operate?

There is no mandatory GHG allowance regime at the federal level. The Regional Greenhouse Gas Initiative (RGGI), California and Washington operate cap-and-trade programmes with associated emissions allowance regimes.

RGGI , the first market-based GHG reduction scheme in the US, currently encompasses the eastern states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, and Virginia (although Virginia is poised to exit the programme). RGGI lowered its GHG emissions cap beginning in 2014 to 91 million short tonnes, with annual follow-on decreases of 2.5 per cent from 2015 to 2020. In August 2017, RGGI members approved measures to extend RGGI to 2030, with a further 30 per cent reduction in GHG emissions during that time. Membership in RGGI is voluntary and subject to change. North Carolina considered joining, but that now seems unlikely following the defeat of a related measure by the North Carolina Legislature.

RGGI is limited to the power sector and uses an allowance system for compliance; electric power generators subject to RGGI are required to hold CO2 allowances equal to the amount of CO2 they emit in a given compliance year. Each RGGI state issues allowances in an amount defined by each state's applicable law or regulation implementing RGGI. Collectively, these allowances comprise the annual RGGI cap and are distributed through quarterly auctions. RGGI also utilises a cost containment reserve system to allocate and auction additional allowances when needed to limit price volatility that, combined with periodic over-supply, has kept prices low but has also frustrated efforts to create a market for carbon offsets in RGGI states. An Emissions Containment Reserve, which allows states to withhold allowances from auction if reduction costs are lower than projected, will allow more dynamic response to market conditions and may have the effect of stabilising or raising slightly the cost of RGGI allowances. RGGI is currently in the midst of its Third Program Review, during which the member states consider impacts and potential changes to their CO2 budget trading programmes. This review will include modelling the electricity sector, reviewing programme elements, and considering environmental justice and equity principles. An updated RGGI Model Rule is anticipated for fall 2023.

California's Global Warming Solutions Act (AB 32) , signed into law on 27 September 2006, established a mandate to reduce GHG emissions to 1990 levels by 2020 and granted broad authority to the California Air Resources Board (CARB) to develop and implement a broad strategy to achieve that goal. In September 2016, a new bill (SB 32) extended and expanded the state's commitment to reducing GHG emissions, establishing a new reduction target of 40 per cent below 1990 levels by 2030. CARB's strategy to achieve these emission reduction goals is set forth in its Scoping Plan and includes programmes in nearly every sector of the economy. CARB's updated 2022 Scoping Plan outlines a concrete plan for the state to achieve carbon neutrality by 2045. The Plan builds on the 2017 update evaluating emissions reductions needed in the electricity, transportation, industrial and building sectors. The 2022 update went beyond the 2017 plan to detail strategies for reductions in short-lived climate pollutants and carbon dioxide removal. It also reduced the role that the multi-sector cap-and-trade GHG emissions programme, first implemented in 2013, will play. As proposed in 2017, the programme governed 80 per cent of GHG emissions in the state and is one of the largest carbon markets in the world. However, according to the 2022 plan, to meet its goal, the state needs 27 per cent lower emission reductions from cap-and-trade than what was planned for in 2017. The cap-and-trade programme will be revised in 2023. On top of these mandates, the Clean Energy and Pollution Reduction Act of 2015 establishes state-wide goals in California for 2030 of 50 per cent electricity generation from renewable resources and doubling energy efficiency in electricity and natural gas usage.

CARB sets an annual cap on GHGs and issues a limited number of emission allowances, each of which authorises its holder to emit one MtCO2e. The number of available allowances is limited by the cap and declines by approximately 3 per cent each year. Entities that emit 25,000 MtCO2e annually are obliged to surrender a certain number of compliance instruments to CARB, consistent with each entity's reported emissions. Compliance instruments consist primarily of allowances, which can be purchased from CARB at quarterly auctions. In addition, at present up to 4 per cent of a covered entity's obligation can be met with CARB-certified offsets, increasing to 6 per cent in 2026. Both allowances and offsets may also be bought and sold on the secondary market, subject to certain restrictions. Covered entities are required to disclose substantial information to CARB, including information about corporate ownership and affiliates, directors and officers, high-level employees, and legal and market-strategy advisers.

On 17 May 2021, Washington Governor Jay Inslee signed into law the Washington Climate Commitment Act, which creates a state-wide cap on GHG emissions that will decline over time, and a limited trading system for carbon credits that can be sold to entities requiring credits to meet their individual GHG emission limits. Beginning on 1 January 2023, all sources emitting more than 25,000 MtCO2e will be subject to the cap and will be required to purchase credits sufficient to meet their emissions. Allowed permits will decline over time until a 90 per cent reduction in GHGs over 1990 emissions levels is achieved in 2050. An annual auction of GHG permits will be conducted by the Washington Department of Ecology, with revenues dedicated to programmes for the reduction of carbon emissions, climate resiliency, support of renewable energy and reduction of GHGs in agriculture. Trading linkages will be established to carbon markets in other jurisdictions to permit the purchase of allowances from those markets, which could then be applied to Washington's GHG limits. The programme started in January 2023, after Ecology sought public comment and published the final Climate Commitment Act Program Rule (Chapter 173-446 WAC). As of 2023, Ecology is also exploring options for linking Washington's efforts with similar programmes in California and Quebec. It also includes a focus on environmental justice and populations disproportionately impacted by climate change. The proposal would adopt specific administrative rules governing the operation of Washington's 'cap-and-invest' programme.

In 2023, New York Governor Kathy Hochul also adopted a cap-and-invest programme to reduce GHG emissions. The programme establishes a declining cap on GHG emissions while investing in programmes that drive emissions reductions in an equitable manner and limit costs to vulnerable households. Begun in January 2023, the programme sets an annual cap on New York pollution emissions, aiming to meet a 40 per cent emission decrease by 2030 and at least 85 per cent reduction from 1990 levels by 2050. Governor Hochul also proposed legislation to create a Climate Action Rebate which, if adopted, is expected to drive over US$1 billion in future cap-and-invest proceeds to New Yorkers.

Similarly, Oregon's 2022 cap-and-trade programme, the Climate Protection Programme, aims to reduce GHG emissions by at least 80 percent from 1990 levels by 2050. Implemented as a result of Oregon governor Kate Brown's 2020 administrative order, the programme imposes a cap on GHG emissions attributable to fuel suppliers that will decrease annually. The rule covers GHG emissions from fuel and natural gas combustion but excludes emissions from biofuels and biomass fuels. Certain large stationary sources, emitting at least 25,000 MtCO2e, must also implement a best available emissions reduction approach.

Law stated - 01 September 2023

Registration

Are there any GHG emission allowance registries in your country? How are they administered?

There is no GHG allowance regime at the federal level. The registry for RGGI allowances is called the 'CO2 Allowance Tracking System.' Each RGGI allowance has a unique serial number, which then tracks initial ownership, transfer, and retirement of allowances. California and other linked jurisdictions utilise the Compliance Instrument Tracking System Service (CITSS) as an allowance registry, which tracks the issuance, initial ownership, transfer, and retirement of allowances and offsets within the Western Climate Initiative (WCI), which encompasses the CA programme. WCI conducts financial audit reports and RGGI periodically assesses the presence of any anticompetitive effects. New York and Oregon may develop similar regimes as well.

Law stated - 01 September 2023

Obtaining, possessing and using GHG emission allowances

What are the requirements for obtaining GHG emission allowances? How are allowances held, cancelled, surrendered and transferred? Can rights in favour of third parties (eg, a pledge) be created on allowances?

There is no GHG allowance regime administered by the federal government. California (and its CITSS platform) and RGGI each maintain rules and systems for the issuance, auction, trading, banking, transfer and retirement of emissions allowances. Any qualified party can participate in RGGI allowance auctions; auction rules limit the number of allowances that associated entities may purchase in a single auction to 25 per cent of the total allowances offered for auction. California conducts quarterly auctions of GHG emission allowances. Both entities that are covered by California's cap-and-trade programme, and others opting into the programme, can participate in the auctions. Washington will follow a model similar to California's.

While some CA allowances are allocated to entities to prevent leakage, most are auctioned. RGGI and California auctions have recently set price records, with RGGI allowances selling for US$12.73 as of June 2023 and CA allowances selling at US$30.33 as of May 2023. In general, market participants must hold instrument trading accounts and be eligible to purchase and hold such instruments. Holding caps may also apply. Compliance entities must surrender or retire a volume of instruments equal to their covered GHG emissions each reporting period; retirement is facilitated through the relevant registry system.

Law stated - 01 September 2023

TRADING OF GHG EMISSION ALLOWANCES (OR SIMILAR EMISSION INSTRUMENTS)

Emission allowances trading

What GHG emission trading systems or schemes are applied in your country?

There is no national GHG allowance regime or national-level emission trading system. Concerning voluntary markets, there is no consolidated registry or trading system. Each allowance issuer or registry maintains its own trading platform, and as a result, the market is fragmented. Most transactions occur as over-the-counter bilateral transactions or through brokers. Each registry or issuer has its own rules concerning trading, banking, and retirement; but, in general, voluntary carbon offsets may be freely transacted, pledged, or securitised. The Commodity Futures Trading Commission (CFTC) regulates carbon offsets as environmental commodities, and certain transactions may be subject to CFTC rules. The CFTC held its second voluntary carbon markets convening on 19 July 2023, to discuss recent trends and initiatives related to carbon markets and how the CFTC can promote integrity for high quality carbon credits and potentially further regulate or oversee the voluntary carbon market to reduce risk.

Law stated - 01 September 2023

Trading agreements

Are any standard agreements on GHG emissions trading used in your country? If so, describe their main features and provisions.

No, although a variety of common terms are found in most emissions reduction purchase agreements and similar agreements used to facilitate such transactions. As a result, many transactions are conducted through similar Emissions Reduction Purchase Agreements. Increasingly, large companies are developing their own procurement criteria and contracts for carbon assets.

Law stated - 01 September 2023

SECTORAL REGULATION

Energy sector

Give details of (non-renewable) energy production and consumption in your country. Describe any regulations on GHG emissions. Describe any obligations on the state and private persons for minimising energy consumption and improving energy efficiency. Describe the main features of any scheme for registration of energy savings and for trade of related accounting units or credits.

The United States is the world's largest producer of oil and natural gas and is likely to remain so given recent approvals of new projects including the Willow Project in Alaska, the next biggest exploitation of oil and gas on public lands. In 2020, the United States produced 6,787,540,000 barrels and consumed 6,613,800,000 barrels of crude oil and petroleum products. The US Energy Information Administration (EIA) predicts that US crude oil production will increase steadily through 2024, with a forecast average of 12.4 million barrels per day (b/d) in 2023 and 12.8 million b/d in 2024, both of which represent record levels of production.

In 2020, there were 40.58 trillion cubic feet of gross withdrawals of natural gas in the United States, and the country consumed 30.41 trillion cubic feet of natural gas. In 2019, the United States produced 706,307,000 short tons of coal and consumed 588,415,000 short tons of coal. In 2019 (the latest year for which data is available), the United States produced 200,000 pounds of uranium concentrate, and nuclear power plants generated 789.9 billion kilowatt hours of electricity. According to the Environmental Protection Agency (EPA)'s 2023 report, total US GHG emissions were 6,340 MMtCO2e in 2021, representing an increase of about 5.2 per cent from 2020 levels.

The DOE runs the Federal Energy Management Program, which focuses on reducing energy consumption and increasing the proportion of renewable energy utilised at federal agencies. The DOE also runs a 'Better Buildings' programme, intending to increase building energy efficiency by 20 per cent over the next decade across the commercial, public, industrial and residential sectors. Through these and other programmes, the federal government continues to create incentives and support energy efficiency and related technologies to reach net-zero emissions by 2050.

California, Oregon and Washington have all enacted Low-Carbon Fuel Standards requiring significant reductions in the carbon intensity of transportation fuels, joining with British Columbia to create a market for low-carbon fuels covering the entire West Coast. California's programme requires a 20 per cent reduction in the carbon intensity of motor fuels by 2030, which refiners can achieve either by blending biofuels with gasoline or diesel, or by purchasing credits, which can be generated by, for example, vehicle electrification. The other states have adopted similar mandates. As of June 2023, New York is also considering adopting a programme similar to California's, which if passed would be the first clean-fuel standard on the East Coast.

Law stated - 01 September 2023

Other sectors

Describe, in general terms, any regulation on GHG emissions in connection with other sectors.

In 2009, EPA determined that the six primary GHGs recognised by the UN reasonably may endanger public health and welfare. Concurrently, EPA determined that GHG emissions from motor vehicles contribute to pollution that endangers public health and welfare. Since then, EPA has worked to implement GHG reductions from on-road vehicles through fuel efficiency and certain vehicle efficiency requirements.

In September 2011, in coordination with the National Highway Traffic Safety Administration (NHTSA), EPA established fuel economy standards for light-duty cars and trucks and the first phase for medium and heavy-duty trucks. Under the Obama administration, NHTSA proposed aggressive Corporate Average Fuel Economy (CAFE) standards for cars and

light trucks for model years 2022 to 2025. These were rolled back by the Trump administration but were re-established by the Biden administration in March 2022. The CAFE standards for model years 2024 to 2026 require fuel economy of 49 mpg by model year 2026. Under appending proposal released by the NHTSA in July 2023, the CAFE standard would increase to 58 mpg in 2032; the proposal also would require a 10 per cent annual fuel economy improvement for certain commercial vehicles (those between 8,500 and 14,001 pounds) for model years 2030-2035.

While EPA generally has nationwide authority to set emission standards, the US Clean Air Act (CAA) grants California the special ability to set its standards, which may be followed by other states, so long as California receives a waiver from EPA. California Governor Gavin Newsom declared in a September 2020 Executive Order, that all new consumer car sales in California must be zero-emission vehicles beginning in 2035, and all new medium-duty and heavy-duty trucks and buses must be zero-emission by 2045. Many other states have adopted CAA emissions requirements for vehicles, and a few have also announced similar zero-emissions policies.

On 15 August 2016, EPA promulgated an endangerment finding under section 231(a)(2)(A) of the CAA for aircraft , which determined that GHG emissions from certain classes of aircraft engines, including those used by most large commercial aircraft, contribute to the air pollution that causes climate change and endangers public health and welfare. According to EPA, GHG emissions from aircraft represent 12 per cent of transport-related GHG emissions in the United States, and 3 per cent of total US GHG emissions. In March 2019, the Federal Aviation Administration (FAA) announced its Monitoring, Reporting, and Verification Program for CORSIA. Applying to US air carriers and commercial and general aviation operators, the FAA's programme consists of voluntary carbon emissions reporting to establish standardised practices to implement CORSIA. On 11 January 2021, the EPA finalised the first domestic GHG emission standards for aircraft. See Final Rule, Control of Air Pollution from Airplanes and Airplane Engines: GHG Emission Standards and Test Procedures , 86 Fed Reg 2136. These CAA standards would apply to manufacturers of new aircraft and new aircraft engines, with compliance determined as part of the FAA's airworthiness certification process. The standards rely largely on fuel efficiency and draw heavily from the 2017 Airplane CO2 Emission Standards established by the International Civil Aviation Organization (ICAO). The EPA explained that aligning domestic standards with international standards would bring 'substantial benefits for future international cooperation' on aircraft emissions, which the agency deemed 'key for achieving worldwide emission reductions.' Id at 2,144–45. In November 2021, the FAA also published the US Aviation Climate Action Plan, which outlines strategies for moving the domestic aviation industry towards net-zero emissions by 2050. The plan relies on more efficient aircraft and engine technologies, production and use of sustainable aviation fuels, advancements in airport operations, international cooperation, and support for climate science research. At the same time, the plan notes that 'the decarbonisation of the aviation sector is extremely challenging'.

When GHGs became a 'regulated pollutant' under the CAA, EPA undertook various rulemaking processes to incorporate GHG emissions into programmes applicable to stationary sources, which include the Title V operating permit programme and the Prevention of Significant Deterioration programme, as well as New Source Performance Standards for both existing and new electric generating units. In an effort to regulate GHG emissions from existing coal-fired power plants, EPA released the Clean Power Plan (CPP) in 2015, which became mired in litigation. Then, on 21 August 2018, EPA proposed under the Trump administration to replace the CPP with the Affordable Clean Energy Rule (ACE Rule), which EPA then finalised on 9 June 2020. This rule, too, became the subject of fierce litigation, and in June 2022, the Supreme Court reviewed the DC Circuit's decision to vacate the ACE Rule. In June 2022, the Supreme Court's decision in West Virginia v EPA further concluded that Congress did not grant EPA the authority to devise emission caps based on an approach that could lead to a generation-shifting approach through 'outside the fence line' control measures. As a result, the court concluded, EPA exceeded its authority when enacting the CPP. Currently, there are no significant federal GHG regulations imposed on existing power plants, although the Biden administration has announced plans to adopt such rules. On May 23 2023, EPA published a new, proposed rule that would formally rescind the ACE rule and replace it with sweeping measures to govern power plant GHG emissions under Section 111 of the CAA. Among other things, the rule would impose: (1) emissions standards for most new and reconstructed natural gas generation units based on hydrogen-cofiring and, for baseload generation, the use of carbon capture and storage (CCS);

(2) classify existing coal-fired units into three categories, with those planning to operate past 2040 required to utilise CCS capturing 90 per cent of CO2 emissions and (3) impose requirements for existing natural gas plants similar to those proposed for new plants. If adopted — and if it survives the likely legal battles to follow — the proposed rule would dramatically lower US GHG emissions from the power sector.

In 2016, EPA issued new standards specific to methane emissions from new and modified oil and gas wells and related facilities. In late 2021, the Biden Administration took several new actions on methane emissions. In November 2021, EPA proposed a rule that would reduce methane and other emissions from both new and existing sources in the oil and natural gas industry. The Biden Administration also released a 'U.S. Methane Emissions Reduction Action Plan' announcing potential measures across numerous sectors, including oil and gas, landfills, abandoned mines, agriculture, and others. In November 2022, EPA also issued a supplemental proposal to further reduce methane emissions from oil and gas operations. EPA then held a public hearing to receive public comments on its proposal in January 2023. We expect continued regulatory scrutiny on methane emissions. Increasing support for the EPA's existing efforts to tackle methane emissions, the Inflation Reduction Act (IRA) further imposes a system of fees aimed at reducing certain methane emissions from pipelines, orphaned wells, and other fossil fuel infrastructure. The IRA also establishes a waste emissions charge for methane from facilities reporting more than 25,000 metric tonnes of carbon per year. On 24 July 2023, and as part of the IRA's Methane Emissions Reduction Program, EPA and the Department of Energy (DOE) released a Notice of Intent (NOI) announcing US$1.5 billion in new funding opportunities related to reducing or monitoring methane emissions from the oil and gas sector.

Law stated - 01 September 2023

RENEWABLE ENERGY AND CARBON CAPTURE

Renewable energy consumption, policy and general regulation

Give details of the production and consumption of renewable energy in your country. What is the policy on renewable energy? Describe any obligations on the state and private parties for renewable energy production or use. Describe the main provisions of any scheme for registration of renewable energy production and use and for trade of related accounting units or credits.

The Energy Policy Act (EPAct) of 1992 was enacted to address many aspects of energy supply and demand, including alternative fuels, renewable energy, and energy efficiency. Significant amendments in 2005 further created or bolstered federal incentives for energy efficiency, biofuels, and numerous types of renewable energy. Since then, the US Congress has regularly extended tax credits for wind and solar energy production, while adopting new tax incentives for carbon sequestration. The federal government also has a programme for leasing federal lands on the outer continental shelf for offshore wind development, as well as onshore leasing of federal lands for wind, solar, and other energy development. In addition, the Federal Energy Regulatory Commission (FERC) announced in 2021 several measures aimed at expanding transmission and other infrastructure to support renewable energy development across the United States. In 2022, FERC issued a Notice of Proposed Rulemaking as the next step in this process, gathering comments from interested parties. In addition, FERC published an interim policy statement in February 2022, describing the agency's procedures for evaluating climate impacts under NEPA and integrating climate considerations into public interest determinations under the Natural Gas Act.

At the federal level, the Department of Energy (DOE) loan guarantee programme backs investment in renewable power, energy efficiency, and commercial climate technologies. Loans backed by the DOE have supported investment in solar, wind, geothermal, nuclear and energy storage technologies, among others. In 2013, the DOE announced the availability of US$8 billion in loan guarantees for advanced energy projects that substantially reduce GHGs and other air pollution. In 2014, the DOE announced the availability of US$4.5 billion in loan guarantees available for innovative renewable energy and energy efficiency projects in the United States that reduce GHG emissions. In 2021, DOE announced it had

more than US$40 billion in loan guarantee capacity available to support clean energy projects. In 2022, it announced its first loan guarantee of US$504 million for advanced Clean Energy Storage in nearly a decade. The Inflation Reduction Act (IRA) also expanded DOE's Title 17 Clean Energy Financing Programme to include facility decarbonisation and energy infrastructure reinvestment projects. The DOE also runs parallel loan programmes for nuclear energy projects and 'advanced fossil energy' projects, each with its own solicitations and funding caps.

Two federal tax credits also provide financial support for renewable energy facilities. The production tax credit provides a tax credit for each kilowatt hour produced by eligible renewable power facilities. Combined with state RPS programmes, The renewable electricity production tax credit (PTC) has been a major driver of wind power development in the United States: between 2007 and 2014, US wind capacity nearly quadrupled. The business energy investment tax credit (ITC) was also significantly expanded in 2008, which provides tax credits for capital investments in solar energy facilities, fuel cells, small wind turbines, geothermal systems, microturbines, and combined heat and power. The PTC and ITC have been scheduled to gradually step down or phase out over time, but legislation passed in December 2020 extended these tax credits. The IRA will extend and expand both tax credits, and then replace them starting in 2025 with a technology-neutral approach that provides tax credits to any technology that produces electricity on a net-zero basis, with tax credits phasing out once electricity-related GHG emissions fall to 25 per cent of 2022 levels.

The federal government is also working to facilitate renewable power generation on public lands through a variety of programmes designed to streamline permitting and leasing. For example, the Department of the Interior and Bureau of Land Management facilitate a solar energy programme in six western states. The Bureau of Ocean Energy Management (BOEM) is also working to identify and lease offshore wind energy areas for commercial wind development, announcing in 2023 an offshore wind lease sales in the Gulf of Mexico and along the Atlantic Coast. The federal government is also working to streamline permitting for renewable energy projects on federal lands, and to support the development of additional electricity transmission. BOEM has issued a proposed rule to streamline regulations for offshore wind and other clean energy developments on the Outer Continental Shelf.

A number of states have binding requirements to shift to 100 percent renewable or non-emitting resources in the electricity sector by mid-century. These include California, Hawaii, Oregon, Washington, Colorado, Nevada, New Mexico, Maine, Massachusetts, Virginia and New York, as well as the District of Columbia and Puerto Rico. Several other states have regulatory or executive orders in place requiring the same goal, including Wisconsin, Connecticut, New Jersey, Rhode Island and Arizona.

About 30 states, plus Washington, DC, have enacted binding renewable portfolio standards (RPS). Eighteen states plus the District of Columbia and Puerto Rico have also adopted laws or policies requiring 100 per cent renewable or non-emitting electric generation by mid-century. Several other states have non-binding RPS programmes or renewable energy goals. State RPS programmes operate by setting renewable energy targets for each year and requiring electric utility companies to achieve that level of renewable power. As a result, RPS programmes are the primary drivers for renewable energy investment in the United States and are spurring significant investment in renewable energy infrastructure in many states. RPS compliance is usually managed through a system of tradeable renewable energy credits (RECs), with one REC representing one MWh of renewable power. In general, RECs are registered by state agencies and are tradeable instruments.

In addition to mandatory RPS programmes, 'green power' programmes allow US energy consumers (including residential, commercial and industrial users) to purchase renewable or 'green' power from their utility company or independent power supplier. Both energy suppliers and businesses looking to offset energy consumption purchase RECs on the voluntary market to meet green power targets and demand. Voluntary REC supply is dominated by wind, though solar is increasing its market share. At least 50 per cent of retail customers in the United States now have an option to purchase 'green' or low-carbon power from their utility. Net metering programmes allow grid-connected customers with renewable energy systems installed on their property to offset their electrical usage and sell excess electricity to their utility. Several states have also implemented feed-in-tariff programmes that provide a higher price to consumers generating certain types of renewable energy. These programmes have aided the expansion of residential

and commercial solar projects in the United States, but net metering programmes are not universal across the United States.

Law stated - 01 September 2023

Wind energy

Describe, in general terms, any regulation of wind energy.

Wind energy projects are subject to a range of federal, state and local environmental, land use, and natural resources laws and regulations. A project may require multiple permits, along with consultation and coordination between multiple agencies. Access to transmission also remains a significant constraint for many wind projects since wind energy resources in the United States are not always located near demand. Developing new or expanded transmission lines can increase the complexity of the above regulatory requirements. For projects located on federal land, federal land management agencies act as the primary permitting authority. For projects on private or state land, permitting authority is vested in one or more state agencies in some states. In others, the primary permitting authority for a wind facility is the local planning commission, zoning board, city council, or county board.

BOEM administers the offshore wind leasing process on the outer continental shelf (OCS) (three nautical miles offshore) through a competitive bidding process. Offshore wind projects also must coordinate with the US Coast Guard during construction and to address any navigational hazards. BOEM has held several auctions, resulting in the sale of various leases to develop offshore wind projects, primarily on the east coast. The timeline for developing an offshore wind project, however, is long, and the first wind turbines were only installed in US federal waters in 2020. The Biden administration has set a goal of developing 30 GW of offshore wind by 2030. In May 2021, BOEM approved an 800 MW project offshore of Martha's Vineyard, MA. And on 18 January 2022, BOEM approved the Construction and Operations Plan for the South Fork Wind Farm. Although project detractors are challenging those approvals, it represents the first federal approval of a large offshore wind facility in the United States. Several other large offshore wind projects are currently undergoing permitting and approval processes at BOEM. At present, BOEM continues the offshore wind leasing process and is reviewing several other applications to permit, develop and operate large offshore wind projects in US waters. The IRA will further open up large parts of federal lands and the OCS to wind energy leasing and production but would also condition such wind leases on first holding future federal oil and gas lease sales.

Renewable energy projects have seen significant litigation over environmental impacts and other issues. Litigation may involve local issues, such as noise, siting and site-specific impacts, or may implicate broader state or national policies. With respect to wind energy, impacts on birds are a frequent focus of litigation. The Migratory Bird Treaty Act (MBTA), the Endangered Species Act, and the Bald and Golden Eagle Protection Act all protect certain species of birds with civil and criminal penalties. Under the Trump administration, the Department of the Interior determined in 2017 that the MBTA is inapplicable to incidental injuries or killings of birds, including those caused by wind projects. The Biden administration has since withdrawn this determination: the Fish and Wildlife Service (FWS) published its final rule revising the MBTA interpretation on 4 October 2021, reinstating its position that 'incidental takes' are prohibited under the MBTA.

Law stated - 01 September 2023

Solar energy

Describe, in general terms, any regulation of solar energy.

Solar energy experienced another record year in 2022, accounting for approximately 46 per cent of all new generating capacity nationally, though solar power (both small and large-scale) still generates only a small percentage of the total

electricity in the United States. However, 16 states generated over 5 per cent of their electricity from solar in 2022. Overall, US solar capacity grew by 14.1 gigawatt-hours (a 34 per cent increase over 2021), despite ongoing tariffs on imported solar cells and modules and uncertainty created by supply chain problems. Predictions estimate that solar energy could represent over 20 per cent of total US electricity by 2050.

Many states and the District of Columbia continue to offer incentives, such as up-front rebates, tax credits (including exemptions from property and sales taxes), production-based incentives, and solar renewable energy credits. An anticipated increase in the need for end-of-life management of photovoltaic (PV) solar panel waste is driving states such as California to take measures in support of streamlined solutions, including through a new 2020 regulation designating PV waste as 'universal waste', alongside electronics, batteries, and other low-risk hazardous waste. A few states are experiencing some pushback as solar expands, due to both transmission issues and high costs to ratepayers. They are in the process of reaching the right balance. Net metering policies are one target of such pushback.

These trends reflect how residential solar, as well as commercial and utility-scale, projects have gained notable traction in an increasing number of jurisdictions across the country. Even so, traditional regulatory approvals and permits are required for these projects, regardless of scale. Residential solar installations, such as rooftop solar projects, generally do not require major regulatory approvals but are required to meet local and state building, zoning, land use and development regulations – including the acquisition of necessary permits. Larger commercial and utility-level solar energy projects implicate a much larger array of federal, state, and local laws – including those concerning land access, siting, water rights, transmission, and environmental review – all of which may be subject to litigation in the process of seeking regulatory approvals.

Law stated - 01 September 2023

Hydropower, geothermal, wave and tidal energy

Describe, in general terms, any regulation of hydropower, geothermal, wave or tidal energy.

FERC issues licences for construction of new hydropower projects. During the permitting process, FERC and the applicant must ensure compliance with NEPA and must obtain a water quality certification from the appropriate state agency under the Clean Water Act (CWA). In recent years, with an eye toward encouraging this emissions-free resource, both Congress and FERC have enacted laws intended to reduce regulatory barriers for small hydropower projects, projects on existing dams, and projects in man-made conduits such as irrigation canals. In many cases, permittees also must obtain authorisations under various federal laws, including those protecting wildlife, such as the Endangered Species Act. In some states, additional authorisation may be required for hydropower resources to qualify for RPS or net metering programmes. With climate change an increasing concern, some states have increased focus on hydropower as a source of energy; in particular, states in the north-east are exploring ways to import more hydropower from Canada and increase capacity and production at existing hydropower facilities. In 2020, the EPA finalised a rule revising its regulations for the CWA water quality certification process intended to promote hydropower projects. In June 2022, the EPA released a new proposed rule aimed at modifying the CWA Section 401 Certification Process in response to the Trump administration's changes in 2020.

Geothermal projects are regulated by a mix of federal and state agencies, with requirements varying by state and whether the project is located on state, federal or private land. The Geothermal Steam Act of 1970 requires the Department of the Interior to establish rules and regulations for the leasing of geothermal resources on lands managed by federal agencies. These regulations are issued by the Bureau of Land Management. Existing EPA Underground Injection Control Regulations under the federal Safe Drinking Water Act define Class V injection wells to include injection wells associated with the recovery of geothermal energy.

Law stated - 01 September 2023

Waste-to-energy

Describe, in general terms, any regulation of production of energy based on waste.

Waste-to-energy is defined as a renewable energy source in many states and plants are therefore eligible to sell RECs. At present, the United States has 75 waste-to-energy facilities that combust municipal solid waste. There has been little development of new waste-to-energy plants since the 1980s and the 1990s; the first new waste-to-energy plant since 1995 was built in 2015. As combustion units, waste-to-energy systems are subject to regulatory requirements similar to those regulating fossil fuel-fired power plants, but often significantly more stringent. The CAA imposes numerous requirements on waste-to-energy facilities, which also must comply with the CWA, the Resource Conservation and Recovery Act and other federal, state, and local laws. Waste-to-energy facilities and related ash landfills have come under increased legal and regulatory scrutiny in recent years and are at times the subject of lawsuits brought under environmental laws.

Law stated - 01 September 2023

Biofuels and biomass

Describe, in general terms, any regulation of biofuel for transport uses and any regulation of biomass for generation of heat and power.

In 2007, EPA established a national Renewable Fuel Standard (RFS) programme that requires transportation fuel refiners to displace certain amounts of petrol and diesel with renewable fuels such as cellulosic biofuel, biomass-based diesel, and advanced biofuel. The programme established the annual renewable fuel standards, responsibilities of refiners and other fuel producers, a trading system, compliance mechanisms, and record-keeping and reporting requirements. Companies that refine, import, or blend fossil fuels are obligated to meet certain individual RFS quotas based on the volume of fuel they introduce into the market. The production of biofuels is also subject to regulation under the CAA and other environmental laws. EPA adopted a new ethanol rule in 2019, which allows fuel blends containing up to 15 per cent ethanol to be sold year-round in 31 states. In 2023, EPA set the required minimum volume for transportation sector use at 20.94 billion gallons of renewable fuel in 2023 (up from 20.63 in 2022), with increases for 2024 and 2025 .

The Biden administration had delayed rules setting RFS volumes for 2021 due to pressure on both sides of the issue, and tension continues with respect to what level of biofuels EPA should require. Relatedly, the US Supreme Court recently issued a decision affirming the validity of ‘waivers’ issued to some smaller refineries that exempt those refineries from certain federal biofuels requirements. On the other hand, conservationists are repeatedly suing EPA for failing to properly consider how increased land conversion and pesticide and fertiliser use needed to meet both the 2022 and the 2023-2025 biofuel targets would impact endangered species.

In 2018, EPA issued a policy statement indicating ‘EPA’s policy in forthcoming regulatory actions will be to treat biogenic CO2 emissions resulting from the combustion of biomass from managed forests at stationary sources for energy production as carbon neutral’. The goal of EPA’s pending actions was to ‘promote the environmental and economic benefits of the use of forest biomass for energy at stationary sources, while balancing uncertainty and administrative simplicity when making programmatic decisions’, acknowledging the need for clear regulatory policy even in the face of continued debate on an accounting framework for biogenic CO2 emissions. Disagreement surrounding the potential rule stalled its progress in early 2020. The Biden administration has not indicated that it intends to finalise this rule, although EPA is facing pressure to maintain its carbon-neutral stance.

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Carbon capture and storage

Describe, in general terms, any policy on and regulation of carbon capture and storage.

Carbon capture and storage (CCS) has substantial potential to reduce GHG emissions from industrial sources but has not been widely demonstrated on a commercial scale. On 1 December 2010, EPA published its final rule concerning an expansion of its GHG reporting rule to include facilities that inject and store CO2 for geologic sequestration or enhanced oil and gas recovery.

In January 2014, EPA issued a final rule excluding CO2 streams in CCS projects from classification as a hazardous substance under the Resource Conservation and Recovery Act, provided that the streams are injected into Class VI wells and not mixed or co-injected with any hazardous wastes. CCS projects are potentially affected by several other regulatory programmes. For instance, NEPA and state equivalents may present regulatory hurdles by requiring environmental review of project impacts. State and local agencies may also impose permitting requirements on CCS projects. High costs, complex regulatory schemes and the low price of natural gas have hindered the widespread development of CCS projects. In the future, lower technology costs and the development of multiple revenue streams from the CO2 associated with CCS projects, particularly using captured CO2 for enhanced oil recovery (EOR), may help spur CCS additional development.

President Biden has announced that his administration will support CCS activities, and recent legislation includes funding for research and development and grants to support this emerging industry. On 13 January 2021, the Treasury Department finalised rules to implement section 45Q of the Tax Code. The 45Q programme provides tax credits for capturing and sequestering carbon oxides that would otherwise escape to the atmosphere. Changes to 45Q, passed with the IRA in 2022, provide tax credits of up to US$85 per tonne of carbon captured and placed in secure geological storage, and tax credits of up to US$60 per tonne of carbon injected into oil or natural gas wells for EOR, and for carbon captured and sequestered using photosynthetic or chemosynthetic processes or 'for any other purpose for which a commercial market exists'. Among the clarifications made in the final regulations is a definition of 'commercial markets'. Further, the 2022 changes increase credit amounts for direct air capture projects to US$180 per tonne of carbon permanently stored and US$130 per tonne for used carbon. The changes also reduce the capacity requirements for eligible projects to 18 750 tonnes per year for power plants and 12 500 tonnes per year for other facilities. The DOE also intends to accelerate geological carbon storage projects, each capable of permanently storing at least 50 million metric tons of captured carbon dioxide. BOEM also plans to initiate a process to create a programme for leasing offshore federal lands on the OCS for carbon storage, which could greatly accelerate development of large-scale projects, particularly in the Gulf of Mexico.

Agriculture and forests are a hot topic in current US climate discussions due to their ability to sequester carbon. A number of actions spanning both the public and private sectors are aimed at increasing forest preservation and conservation to increase carbon sequestration and to incentivise agricultural practices that either reduce GHG emissions or increase soil carbon sequestration. In February 2022, the Department of Agriculture (USDA) announced it would invest US$1 billion on projects for farmers, ranchers, and forest landowners to facilitate practices that reduce emissions and capture and store carbon. The IRA is adding significant additional funding for carbon capture based on agricultural or silvicultural practices, promoting climate resiliency and rewarding carbon sequestration activities. The USDA also oversees several voluntary conservation programmes focused on restoring and conserving forest and agricultural lands and enhancing carbon sequestration. These programmes provide financial incentives for farmers and forest landowners to maintain and enhance carbon benefits associated with their farms and forests. With the USDA's charge to promote sustainable land management to increase sequestration, increased funding to these programmes through the IRA could translate into renewed efforts to implement these programmes.

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CLIMATE MATTERS IN TRANSACTIONS

Climate matters in M&A transactions

What are the main climate matters and regulations to consider in M&A transactions and other transactions?

Entities must consider a range of climate issues when undertaking M&A transactions. Risks generally fall into three categories: regulatory, economic and operational risk related to climate change impacts. Some matters also present M&A opportunities, such as incentives related to renewable energy. Matters to consider include:

- material operational or financial risk related to climate change impacts on infrastructure, facilities, supply chains and the like;
- GHG reporting and permitting obligations for certain sectors;
- existence of voluntary GHG reduction goals, attainment of those goals, and related public disclosures and messaging, including compliance with consumer protection laws and the FTC Green Guides;
- EPA or state regulation of GHG emissions and related costs for higher-emitting industries;
- regulatory uncertainty given the rapid development of climate change law in the United States and globally;
- regulatory costs associated with assuring compliance with a plethora of federal, state and local climate change, energy efficiency and renewable energy programmes;
- litigation exposure to claims based upon alleged climate impact of corporate operations or of climate changes on corporate operations;
- financial disclosure and compliance obligations under Securities and Exchange Commission rules and state laws, including emerging disclosure requirements on GHG emissions;
- adherence to the Equator Principles, if applicable, which include requirements for climate impacts;
- impacts on coastlines, ports and other infrastructure related to increased storm intensity and rising sea levels;
- impacts on natural resources and commodities related to climate change, such as water supplies, fisheries, forestry products and crops;
- global economic and security risks related to potentially destabilising impacts of climate change in certain regions; and
- market opportunities related to renewable power, renewable energy credits and offset trading, GHG mitigation and energy efficiency.

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UPDATE AND TRENDS

Emerging trends

Are there any emerging trends or hot topics that may affect climate regulation in your country in the foreseeable future?

The US is moving on multiple fronts to reduce and regulate GHG emissions. We expect these efforts to continue at both the state and federal levels. At the federal level, these efforts are focused on the development and expansion of frameworks and direct incentives for GHG reduction measures. For example, implementation of the Inflation Reduction Act (IRA) in 2023 is already showing significant efforts to: develop offshore wind production; regulate GHG emissions, including those of methane and HFCs; promote both agricultural carbon sequestration and climate resiliency of farms and forests; expand development and use of biofuels; and decarbonise GHG-intensive industries through higher energy efficiency and transition to low-carbon inputs. The IRA is also revising and expanding the American system of tax

credits for renewable energy production and carbon capture. Combined with the US$1.1 trillion bipartisan infrastructure law, government procurement initiatives, permitting reforms, and agency actions to support GHG reduction across various sectors, the federal government has, over the past few years, unleashed a wide range of incentives and programmes that will lead to both significant GHG reductions and related economic realignment in certain industries.

In addition to incentives, the federal government also is focusing on further regulation of high-emitting sectors, with new GHG emissions standards either proposed or under development. And in alignment with global trends, US financial regulators and the Federal Trade Commission (FTC) are focused on new laws and guidelines governing GHG disclosures and consumer protection standards for GHG claims. President Biden also is pushing environmental justice forward in tandem with climate change. In April 2023, he issued Executive Order 14086, 'Revitalizing Our Nation's Commitment to Environmental Justice for All', in which climate justice considerations feature prominently. This effort will further promote environmental and climate justice within federal government initiatives.

Many states also have continued or increased climate regulation at the state level and through regional programmes. At present, over 20 states have net-zero GHG emissions targets, representing a sizeable majority of the US economy. California still leads the charge, but faces competition from New York, Washington, Massachusetts and other states developing aggressive GHG programmes, including increased deployment of renewable energy and a strong focus on the transportation sector, which is now the largest GHG-emitting sector in many states. While some of these federal and state actions are being challenged or facing pushback, they are likely to lead to increased GHG regulation and action on climate change in the next one to three years.

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