

# Environment & Climate Regulation 2022

Contributing editors  
James M Auslander and Brook J Detterman  
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**Contributing editors****James M Auslander and Brook J Detterman****Beveridge & Diamond PC**

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Lexology Getting The Deal Through is delighted to publish the seventh edition of *Environment & Climate Regulation*, which is available in print and online at [www.lexology.com/gtdt](http://www.lexology.com/gtdt).

Lexology Getting The Deal Through provides international expert analysis in key areas of law, practice and regulation for corporate counsel, cross-border legal practitioners, and company directors and officers.

Throughout this edition, and following the unique Lexology Getting The Deal Through format, the same key questions are answered by leading practitioners in each of the jurisdictions featured. Our coverage this year includes a new chapter on the European Union.

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Every effort has been made to cover all matters of concern to readers. However, specific legal advice should always be sought from experienced local advisers.

Lexology Getting The Deal Through gratefully acknowledges the efforts of all the contributors to this volume, who were chosen for their recognised expertise. We also extend special thanks to the contributing editors, James M Auslander and Brook J Detterman of Beveridge & Diamond PC, for their continued assistance with this volume.



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# United States

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## MAIN CLIMATE REGULATIONS, POLICIES AND AUTHORITIES

### International agreements

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

The United States is a party to the Paris Agreement. The US 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. The US also submitted an initial commitment to reduce greenhouse gas (GHG) emissions to 26 per cent to 28 per cent below 2005 levels by 2025 as its first 'Intended Nationally Determined Contribution' (NDC) under the Paris Agreement. In June 2017, the Trump administration announced that the US would pull out of the Paris Agreement, and the US did briefly withdraw from the Paris Agreement on 4 November 2020. However, following the election of President Joe Biden, the US announced that it would re-join the Paris Agreement. President Biden used executive authority when he entered office in January 2021 to re-enter the Agreement, which took effect 19 February 2021. In April, 2021, the US submitted a new NDC, committing to reduce economy-wide GHG emissions by 50–52 per cent below 2005 levels in 2030. The US NDC also identified key pathways towards achieving those emissions reductions, focused on emissions reductions in the following sectors: electricity, transportation, buildings, and certain industrial sources. The US NDC also highlighted the importance of reducing emissions of high-potency GHGs, as well as enhancing natural carbon sinks, including forests and agricultural lands. With respect to GHG emissions related to international transportation, the US NDC also notes that the US is exploring ways to support decarbonisation of international maritime and aviation energy use through domestic action as well as through the International Maritime Organization (IMO) and International Civil Aviation Organization (ICAO).

In addition to federal commitments, numerous US states formed a group called the US Climate Alliance, now with 24 member states and Puerto Rico, committed to upholding the objectives of the Paris Agreement. State, municipal, academic, and corporate actors have also committed to meeting the Agreement's goals regardless of federal involvement, through organisations such as America's Pledge and We Are Still In.

The US also is 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) like 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 by 2030. On 15 October 2016, at the 28th Meeting of the Parties in Kigali, the parties agreed to amend the Montreal Protocol to expand its scope to include certain hydrofluorocarbons (HFCs), though the US has not yet ratified the agreement. On 27

January 2021, President Biden announced in an executive order to send the Kigali Amendment to the Senate for its advice and consent to US ratification.

The Environmental Protection Agency (EPA) and the Federal Aviation Administration (FAA) traditionally have worked with ICAO to establish aircraft emissions standards. The US 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 will need to develop a monitoring, reporting, and verification system for CO<sub>2</sub> emissions from international flights subject to CORSIA. CORSIA eventually require the offsetting of new emissions (above a baseline year of 2019) from covered international flights beginning in 2024, with a pilot phase from 2021–2023. In January 2021, the Trump Administration EPA finalised Clean Air Act 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.' *Id.* at 2,144–45.

On 11 November 2014, the US struck a bilateral agreement with China under which both nations will seek to significantly reduce GHG emissions. Under the agreement, the US pledged to reduce emissions to 26 per cent to 28 per cent below 2005 levels by 2025, consistent with its initial NDC. On 17 April 2021, the Special Envoys from the US and China released a joint statement after they met to discuss the climate crisis. The US-China Joint Statement Addressing the Climate Crisis detailed how the two countries are committed to cooperating with each other and in multilateral processes. The Statement specifically included the following goals: develop by COP26 their respective long-term strategies aimed at net-zero GHG emissions or carbon neutrality; take appropriate actions to maximise international investment and finance in support of the transition from carbon-intensive fossil fuel based energy to green, low-carbon and renewable energy in developing countries; and implement the phase-down of hydrofluorocarbon production and consumption reflected in the Kigali Amendment to the Montreal Protocol.

Similarly, In June 2016, the US, 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 release a statement, the Roadmap for a Renewed US-Canada Partnership, in which the Biden administration and Canadian Prime Minister Trudeau set forth goals to accelerate climate ambitions. The Roadmap included goals such as following the Paris Agreement's efforts to achieve net-zero emissions no later than 2050, launching a High Level Climate Ministerial, to coordinate cooperation between the US and Canada to increase ambition aligned to the Paris Agreement and net-zero objectives, achieving a net-zero carbon pollution free power sector in the

US by 2035 and achieving 90 per cent non-emitting electricity by 2030 in Canada.

## International regulations and national regulatory policies

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

Although the US 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 achieve a 50–52 per cent reduction in GHG emissions by 2030 and reach 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 regulate GHG emissions in the US as well as the creation of incentives for voluntary GHG emissions reductions and carbon sequestration. As discussed further below, additional regulation and legislation is 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. With numerous proposals pending as of the date of this publication, it remains unclear which ones will prevail, but it is likely that the US will take further measures over the next six to 18 months to further implement the GHG goals set forth in the US NDC. These US proposals also may take into account the policies of major trading partners, including the EU, China, Canada and Mexico. Separately, financial regulators in the US 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.

Individual US states and federal regulatory agencies have taken numerous sector-based actions and often look to international standards when designing domestic programmes. For example, EPA has historically cited GHG emissions data and climate change research created by the UN's Intergovernmental Panel on Climate Change. Similarly, EPA and the FAA traditionally have worked with ICAO to establish aircraft emissions standards. EPA has pledged to participate in CORSIA and in 2020 finalised Clean Air Act (CAA) emission standards with domestic limits that mirror the ICAO's standards. EPA explained that mirroring the ICAO standards domestically will bring 'substantial benefits for future international cooperation' on aircraft emissions, which the agency deemed 'key for achieving worldwide emission reductions'.

## Main national regulatory policies

### 3 | Outline recent government policy on climate matters.

Within hours of his inauguration on 20 January 2021, President Biden acted to bring the US 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. One week later, the Biden administration hosted 'climate day' at the White House, where he described a 'government-wide' approach and focus on climate change issues and signed Executive Order 14008, 'Tackling the Climate Crisis at Home and Abroad.' President Biden has taken other actions on climate change as well and is assembling a team at the White House and at EPA with deep experience on climate change and GHG policy. In May 2021, President Biden issued an Executive Order on Climate-Related Financial Risk, which called for development of a US government-wide climate risk strategy by 17 September 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 US by 2050, both of which are driving additional legislative proposals and regulatory actions under the Biden administration.

In the absence of national legislation specifically regulating GHG emissions, federal agencies have historically implemented climate policy under pre-existing regulatory authority, primarily by promulgating regulations under the CAA. Under the CAA and parallel state authorities to regulate emissions, individual US states and federal regulatory agencies have taken numerous sector-based actions. For example, EPA has promulgated regulations aimed at GHG reductions from various larger sources of GHG emissions that include: 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. However, the agency finalised a rule in February 2020 rolling back the applicability of certain leak repair requirements to HFCs.

Regarding the SNAP programme, EPA issued SNAP Rule 20 in 2015 prohibiting certain HFCs and HFC-blends in various end-uses in four industrial sectors. That rule was challenged, and the DC Circuit issued an opinion in August 2017 vacating part of the rule to the extent it required manufacturers to replace HFCs with a different substance, a result that was virtually unenforceable as a practical matter. The DC Circuit also struck down a second SNAP rule regulating HFCs in April 2019 after determining it was bound by its previous decision, resulting in the same outcome for those restrictions. Several states promulgated replacement regulations in light of these developments, with California leading the charge to replace the 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: (1) 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; (2) authorising EPA to promulgate new refrigerant management and leak repair regulations for HFCs; and (3) authorising EPA to promulgate new technology transition regulations that restrict the use of HFCs in various applications to replace 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. 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 has six months to decide whether to accept these petitions and initiate a rulemaking or deny the petitions. The first deadline associated with these petitions is in October 2021.

## Main national legislation

### 4 | Identify the main national laws and regulations on climate matters.

The US lacks any stand-alone national climate change legislation, although certain GHG emissions are subject to regulation under the CAA and HFCs are now regulated or authorised to be regulated under the AIM Act. At present, the US Congress is considering legislation that contains various GHG and climate change components. Nearing finalisation is an infrastructure spending package 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. Also under consideration is a large spending package that includes numerous additional climate change provisions, including additional tax credits for GHG sequestration and GHG-reducing activities, expanded tax credits for renewable energy, and a Clean Electricity Standard. According to reports, the combined GHG measures in these bills could help the US to achieve 45 per cent reductions from 2005 emissions by 2030. However, the passage of these two pieces of legislation – and the specific components they will contain if enacted – remains uncertain and subject to debate in Congress.

### National regulatory authorities

- 5 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 climate regulation. EPA's authority includes 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 CO<sub>2</sub> 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 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. Consideration of climate change impacts in NEPA analyses continues to be primarily guided by court decisions on agency rule-making 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, the 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, and intends to release new guidance that ostensibly will broaden such analysis. As of August 2021, the Biden administration is reconsidering the 2020 regulatory amendments and has delayed individual federal agencies' corresponding amendments of their own NEPA implementing regulations. The Biden administration also rescinded 26 June 2019 CEQ draft guidance to address how agencies should consider GHG emissions in the NEPA process, and intends to release new guidance that ostensibly will broaden such analysis.

President Biden established a President's Council of Advisors on Science and Technology and a Task Force on Scientific Integrity. Additionally, President Biden created a White House Office of Domestic

Climate Policy within the Executive Office of the President and a National Climate Task Force. The National Climate Task Force includes every cabinet agency and a number of additional non-cabinet agencies with authority over environmental or scientific matters, headed by a National Climate Advisor. This new Executive Branch position along with the new Special Presidential Envoy for Climate position are dedicated to directly addressing climate change.

Additional federal agencies also are responsible for programmes and regulations related to climate change, including the Department of the Treasury and the Internal Revenue Service (which administer certain tax incentive programmes); Department of Energy; Department of Agriculture; Securities and Exchange Commission; Department of the Interior; Department of State; Department of Commerce; National Aeronautics and Space Administration; and others.

## GENERAL NATIONAL CLIMATE MATTERS

### National emissions and limits

- 6 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 US is the Environmental Protection Agency's (EPA) 2021 'Inventory of US Greenhouse Gas Emissions and Sinks', which covers the period from 1990 to 2019. Mandatory GHG reporting began in 2011 for certain industries and in 2012 for others. As a result, EPA's 2021 report includes robust GHG emissions data from various sectors of the US economy. In 2019, total gross US GHG emissions were 6,558.3 million metric tons of carbon dioxide equivalent (MMT CO<sub>2</sub> Eq). The main sources of GHG emissions include the electricity generation, transportation, industrial, residential and commercial sectors. Complete figures by sector are available in EPA's 2021 GHG Inventory.

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 Clean Air Act and other federal laws, and by state laws.

### National GHG emission projects

- 7 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 Clean Air Act regulation, which does not currently contemplate emissions reduction projects or carbon offsets as compliance mechanisms. Certain other programmes provide incentives for carbon sequestration and other GHG removals.

Section 45Q of the Tax Code provides tax credits for capturing and sequestering carbon oxides that would otherwise escape to the atmosphere, and the US Department of Agriculture (USDA) also implements various programmes to support and incentivise carbon sequestration 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 US. Private carbon offset markets also have spurred development of a wide array of carbon sequestration projects and programmes in the forestry and agriculture sectors, among others.



## DOMESTIC CLIMATE SECTOR

### Domestic climate sector

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

Commercial climate business in the US 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 accelerating, and the generation of offset credits has increased significantly as entities seek offsets for use in compliance 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 Securities and Exchange Commission (SEC) are revisiting their regulation and oversight of environmental commodities markets, including carbon offsets, as well as with respect to related reporting and disclosure requirements. The SEC also is considering whether to amend its current guidance covering mandatory climate risk disclosures to encompass additional GHG matters, including voluntary corporate reduction targets. Similarly, the US Federal Trade Commission (FTC) appears poised to significantly refresh its Guides for the Use of Environmental Marketing Claims (Green Guides). On 2 July 2021, the FTC published its 10-year regulatory review schedule indicating that the agency will initiate a review of the Green Guides in 2022. This action is in line with the global trend toward more scrutiny of claims and substantiation, including the European Union's pending initiative to mandate enhanced substantiation for environmental claims. As voluntary GHG reduction and ESG effort expand rapidly in the US, we expect additional scrutiny and oversight from these and other regulatory agencies charged with protecting financial markets and consumers.

## GENERAL GHG EMISSIONS REGULATION

### Regulation of emissions

9 | 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 US to regulate GHG emissions. The main programmes are regulations issued under the Clean Air Act (CAA), federal motor vehicle fuel economy standards, California's cap-and-trade programme, a similar programme in the State of Washington, and the Regional Greenhouse Gas Initiative. California and Oregon also have Low Carbon Fuel Programs (LCFS), which govern the carbon intensity of certain fuels.

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 US by 2050. Individual states also are driving significant changes in US climate policy. At present, six states have binding net-zero GHG emissions targets (typically by 2045 or 2050) and another three 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.

### GHG emission permits or approvals

10 | 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 reductions 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 states participating in the Regional Greenhouse Gas Initiative have a cap-and-trade programme covering the electricity sector.

### Oversight of GHG emissions

11 | How are GHG emissions monitored, reported and verified?

The Environmental Protection Agency's (EPA) 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 US. Compliance for covered sources is mandatory and administrative, civil or criminal penalties may apply for violations. Several states also have 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 Securities and Exchange Commission (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 US, in 2021 the SEC also issued a specific request for comments regarding whether changes are needed to its GHG disclosure rules. The SEC is reviewing those comments and is widely expected to update its current rules and guidance to require either enhanced reporting on GHG risks and, potentially, other GHG matters as well, including GHG emissions and voluntary GHG reduction activities.

Environmental groups, investors and shareholders also are increasingly driving changes to climate risk reporting by companies in the US. Companies are increasingly facing 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.

## GHG EMISSION ALLOWANCES (OR SIMILAR EMISSION INSTRUMENTS)

### Regime

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

There is no 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, Rhode Island, Vermont and Virginia. RGGI lowered its GHG emissions cap beginning in 2014 to 91 million short tons, 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; New Jersey withdrew from RGGI in 2011 but rejoined in 2019. Virginia joined RGGI in 2020, and Pennsylvania is considering joining the programme.

RGGI is limited to the power sector and uses an allowance system for compliance; electric power generators subject to RGGI are required to hold CO<sub>2</sub> allowances equal to the amount of CO<sub>2</sub> 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, which 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 also has 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.

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 2017 updated Scoping Plan seeks a 2030 target of 260MMtCO<sub>2</sub>e, and envisions an 80 per cent reduction in GHG emission by 2050. The central feature is a multi-sector cap-and-trade GHG emissions programme, first implemented in 2013. The programme governs 80 per cent of GHG emissions in the state, and is one of the largest carbon markets in the world. In July 2017, CARB established a 'price ceiling' and limits the use of out-of-state offsets. Starting in 2021, only 4 per cent of a covered entity's compliance obligations can be met with offset credits, and that same year, CARB will start implementing a price ceiling of US\$65 per allowance. 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 MtCO<sub>2</sub>e. The number of available allowances is limited by the cap, and declines by approximately 3 per cent each year. Entities that emit 25,000MtCO<sub>2</sub>e 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, up to 8 per cent of a covered entity's obligation can be met with CARB-certified offsets, but starting in 2021 this number will drop down to 4 per cent, then increase to 6 per cent in 2026. Both allowances and offsets also may 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.

As of mid-August 2021, California state lawmakers are considering whether to require a higher price for carbon under the state's cap-and-trade programme. Some legislators appear concerned that the generally low cost of carbon credits within California's programme (approximately US\$18 per ton, which is less than one-third of the price of similar credits in Europe) might stifle progress towards the state's 2045 'carbon neutrality' target or Governor Newsom's even more ambitious goal to meet that target by 2035. However, the 18 August auction resulted in record high prices for all forms of allowances, as well as record high revenue (over US\$1 billion) flowing into California's Greenhouse Gas Reduction Fund. At the time of writing, it is unclear whether the results of this latest auction might cause lawmakers to reconsider raising the price of carbon in California.

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 which 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 1 January 2023, all sources emitting more than 25,000MtCO<sub>2</sub>e 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 allow purchase of allowances from those markets that can be applied to Washington's GHG limits.

### Registration

#### 13 | 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 'CO<sub>2</sub> 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.

### Obtaining, possessing and using GHG emission allowances

#### 14 | 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\$7.97 and CA allowances selling at US\$23.30. 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.

## TRADING OF GHG EMISSION ALLOWANCES (OR SIMILAR EMISSION INSTRUMENTS)

### Emission allowances trading

15 | 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. The Regional Greenhouse Gas Initiative (RGGI) and Compliance Instrument Tracking System Service (CITSS) each maintain their own trading platforms. In general, and subject to programme rules and eligibility, compliance instruments (either allowances issued or obtained at auction, or eligible carbon offset credits) may be freely transacted by market participants. RGGI allowances also are traded on a secondary market, along with associated futures and options contracts.

With respect to 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 with respect to 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.

### Trading agreements

16 | 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.

## SECTORAL REGULATION

### Energy sector

17 | 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.

In 2020, the US produced 6,787,540,000 barrels and consumed 6,613,800,000 barrels of crude oil and petroleum products. In 2020, there were 40.58 trillion cubic feet of gross withdrawals of natural gas in the US and the US consumed 30.41 trillion cubic feet of natural gas. In 2019, the US 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 US 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's (EPA) 2020 report, total US GHG emissions were 6,558MMtCO<sub>2</sub>e in 2019, representing a decrease of about 1.7 per cent from 2018 levels.

Energy policy continues to swing based on internal US politics. Immediately following the January 2021 transition, the Biden administration ordered agencies to review all actions taken during the Trump administration that were inconsistent with mitigating climate change. The order explicitly named regulations that lowered efficiency standards for vehicles, appliances and buildings, as well as pollution standards for oil and gas producers. The order also halted natural gas leasing in the Arctic National Wildlife Refuge and revoked a permit for the Keystone XL oil pipeline. Since then, agencies have published proposals to modify or revoke a large swath of regulations relating to energy production and efficiency standards. Among these is the Trump administration's modification to the Process Rule, which dictates how the Department of Energy (DOE) establishes minimum efficiency standards and testing procedures. The Biden administration proposes to restore the DOE's discretion to make case-by-case determinations of what constitutes 'significant' energy savings and how to test energy consumption.

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, with a goal of increasing 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 provide support for energy efficiency and related technologies with the goal of reaching 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 else purchasing credits, which can be generated by, for example, vehicle electrification. The other states have adopted similar mandates. Thirteen states and the District of Columbia are developing the Transportation Climate Initiative, which would create a regional market-based programme aimed at reducing vehicle GHG emissions. So far, only four states have officially launched the programme, which remains in the development stages.

## Other sectors

### 18 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 be anticipated to 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 as well as 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 year 2022 to 2025. These were rolled back by the Trump administration. The Obama-era rule would have resulted in fuel economy of 54.5mpg by model year 2025, while the new rules implemented by the Trump administration set the standard at 40.4mpg. Most recently, in April 2021, NHTSA under the Biden administration proposed to repeal the Trump-era rule and replace it with more stringent CAFE standards. has announced new, stringent CAFE standards. And in August 2021, NHTSA further announced that it would soon take action to 'propose robust new fuel economy standards.' While this matter remains in flux, it is likely that the Biden administration will move to finalise new vehicle fuel efficiency requirements, through CAFE standards, in the near future.

While EPA generally has nationwide authority to set emission standards, the Clean Air Act (CAA) grants California the special ability to set its own 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 starting in 2035, with all new medium-duty and heavy-duty trucks and buses to be zero-emissions by 2045. Many other states either 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 US, and 3 per cent of total US GHG emissions. In March 2019, the FAA announced its Monitoring, Reporting, and Verification Program for the Carbon Offsetting and Reductions Scheme for International Aviation (CORSIA). Applying to US air carriers and commercial and general aviation operators, the Federal Aviation Administration's (FAA) programme consists of voluntary carbon emissions reporting to establish standardised practices to implement CORSIA. On January 11, 2021, the Trump Administration 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 (11 January 2021). These Clean Air Act 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 CO<sub>2</sub> Emission Standards established by ICAO. 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.

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 in 2015, which became mired in litigation. Then on 21 August 2018, EPA proposed under the Trump administration to replace the Clean Power Plan 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 on 19 January 2021, the DC Circuit vacated the ACE Rule, with instructions to EPA to consider 'the question afresh'. At present, there are no significant federal GHG regulations imposed on existing power plants, although further regulatory action is expected by the Biden administration.

In 2016, EPA issued new standards specific to methane emissions from new and modified oil and gas wells and related facilities. Following an attempted roll-back by the Trump administration, President Biden signed legislation to reinstate the Obama-era standards. Additional regulation of methane emissions from the oil and gas sector is likely.

## RENEWABLE ENERGY AND CARBON CAPTURE

### Renewable energy consumption, policy and general regulation

#### 19 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 US currently does not have a comprehensive national policy on renewable energy production or use. Instead, a patchwork of federal and state programmes and incentives drives the renewable power sector in the US. At the same time, pending proposals in Congress have the potential to create a national renewable energy programme.

A number of states have binding requirements to shift to 100 per cent renewable or non-emitting resources in the electricity sector by mid-century. These include California, Hawaii, Oregon, Washington, Colorado, Nevada, New Mexico, Oregon, Maine, 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 also have adopted laws or policies requiring 100 per cent renewable or non-emitting electric generation by mid-century. Seven 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 US and are spurring significant investment in renewable energy infrastructure in many states. Collectively, these programmes are expected to dramatically increase the demand for wind power while also driving the expansion of solar and hydrokinetic power. 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. Most state programmes require compliance through use of RECs or renewable power generated in-state, with limited

exceptions and eligible renewable resources and definitions can vary widely by state. REC prices varying widely by state and resource type.

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. It is estimated that more than 50 per cent of retail customers in the US now have an option to purchasing '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 US, but net metering programmes are not universal across the US.

At the federal level, the Department of Energy's (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 availability of US\$4.5 billion in loan guarantees available for innovative renewable energy and energy efficiency projects in the US that reduce GHG emissions. 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 PTC has been a major driver of wind power development in the US: 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 federal government is also working to facilitate renewable power generation on public lands through a variety of programmes that are 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, and the Bureau of Ocean Energy Management is working to identify and lease offshore wind energy areas for commercial wind development. 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.

## Wind energy

### 20 | 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 and consultation and coordination between multiple agencies. Access to transmission also remains a significant constraint for many wind projects, since wind energy resources in the US 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, in some states permitting authority is vested in one or more state agencies. In other cases, the primary permitting authority for a wind facility is the local planning commission, zoning board, city council or county board.

The Bureau of Ocean Energy Management (BOEM) administers the offshore wind leasing process on the outer continental shelf (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 30GW of offshore wind by 2030. In May 2021, BOEM approved an 800MW project offshore of Martha's Vineyard, MA. Although that approval is being challenged by project detractors, it represents the first federal approval of a large offshore wind facility in the US. Several more large offshore wind projects are currently undergoing permitting and approval processes at BOEM.

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. 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 withdrawn this determination.

## Solar energy

### 21 | Describe, in general terms, any regulation of solar energy.

Solar energy experienced another record year in 2020, accounting for approximately 43 per cent of all new generating capacity nationally, though solar power (both small- and large-scale) generated only 2.3 per cent of the total electricity in the US. Overall, the US solar capacity grew by 19.2 gigawatts to a total of 97.2 gigawatts despite ongoing tariffs on imported solar cells and modules. Federal, state and utility incentive programmes, alongside CO<sub>2</sub> emission reduction targets, largely drove this growth, though many of the incentive programmes are in the process of phasing out, including the ITC. Last year Congress extended the ITC programme's expiry date by two years, and the programme now is scheduled to taper off from 26 per cent in 2021 and 2022 to 22 per cent in 2021. The programme will then expire for residential systems and drop to a 10 per cent tax credit for commercial projects in 2024.

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. Several newly enacted laws focus on ensuring that solar technologies are available to lower-income consumers. California leads the solar growth, comprising 43 per cent of small-scale sources, potentially owing in part to the solar mandate going into effect on 1 January 2020, requiring all new single- and multi-family homes under construction to have a solar system as an electricity source. To date, California has nearly 32,000 megawatts of installed solar capacity, more than three times that of second place Texas. 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.

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.

### Hydropower, geothermal, wave and tidal energy

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

The Federal Energy Regulatory Commission (FERC) issues licences for construction of new hydropower projects. During the permitting process, FERC and the applicant must assure compliance with the National Environmental Policy Act (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. Last year, the Environmental Protection Agency (EPA) finalised a rule revising its regulations for the CWA water quality certification process intended to promote hydropower projects. The Biden administration's EPA has opened a notice and comment period to revise and potentially revoke that rule change.

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.

### Waste-to-energy

**23** 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. By the end of 2019, the US had fewer than 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 that are similar to fossil-fuel fired power plants, but often significantly more stringent. The US Clean Air Act (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.

### Biofuels and biomass

**24** 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 has scaled back biofuel requirements to account for declining petrol use and technical limitations related to ethanol blending and biofuel production. In November 2015, EPA finalised a goal of 18 billion gallons of renewable fuels for 2016. This was a modest increase from the agency's June 2015 proposal, but it is still short of the 22.25 billion gallons required by Congress. Still, the 18 billion gallons goal exceeds 10 per cent of the projected petrol production for 2016, which some US carmakers advised could negatively affect the performance of cars and may violate certain warranties. 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.

On 19 December 2019, EPA adopted rules finalising RFS volume requirements for 2020, which contained modest biofuel increases from 2019 levels. It is likely that President Biden will continue with a similar approach, although the administration delayed rules setting RFS volumes for 2021 due to pressure on both sides of the issue. Farming interests are pressing for an increase in biofuel requirements, in particular for increased cellulosic ethanol targets, while petroleum companies and some vehicle manufacturers advocate lower requirements. 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 requirement.

In 2018, EPA issued a policy statement indicating 'EPA's policy in forthcoming regulatory actions will be to treat biogenic CO<sub>2</sub> 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 CO<sub>2</sub> 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.

## Carbon capture and storage

### 25 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. Several large CCS demonstration projects in the US are largely supported by resources allocated by the American Recovery and Reinvestment Act of 2009, as well as a variety of federal and state incentives, including tax credits and loan guarantees. On 1 December 2010, EPA published its final rule concerning an expansion of its GHG reporting rule to include facilities that inject and store CO<sub>2</sub> for geologic sequestration or enhanced oil and gas recovery.

In January 2014, EPA issued a final rule excluding CO<sub>2</sub> 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 CO<sub>2</sub> associated with CCS projects, particularly using captured CO<sub>2</sub> 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. The current rules provide tax credits of up to US\$50 per ton of carbon captured and placed in secure geological storage; and tax credits of up to US\$35 per ton 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'. The US Congress is considering a potential expansion of the 45Q tax credit as part of pending budget and infrastructure legislation; while there is bipartisan support for the 45Q programme, the likelihood and details of any expansion are difficult to predict as of the date of this publication.

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 sector are aimed at increasing forest preservation and conservation in order to increase carbon sequestration, and to incentivise agricultural practices that either reduce GHG emissions or increase soil carbon sequestration.

Under the Biden administration's whole-of-government approach to climate change, the US Department of Agriculture (USDA) is tasked with promoting natural climate solutions and rewarding carbon sequestration activities. The USDA already oversees a number of voluntary conservation programmes that focus on restoring and conserving forest and agricultural lands, and to 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, we expect increased funding to these programmes and renewed efforts to implement these programmes.

Congress is also considering a number of bills that encourage and incentivise sustainable forest land management. For example, under the Growing Climate Solutions Act, private forest landowners, farmers and ranchers would have increased access to the voluntary carbon offset market. This bill passed the Senate on 24 June, and is expected to pass the House as well. Congress is also considering the Trillion Trees Act, which would, among other things, set targets for sequestering carbon through reforestation activities, and encourage reforestation activities.

In the private sector, a growing number of companies have pledged to eliminate deforestation from their supply chains in order to help achieve carbon emissions reductions. Recognition by a broad array of stakeholders that forests play a significant role in climate efforts means that programmes and regulations geared towards forest preservation, conservation and utilisation of carbon sequestration efforts will continue and potentially expand.

## CLIMATE MATTERS IN TRANSACTIONS

### Climate matters in M&A transactions

#### 26 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;
- Environmental Protection Authority regulation of GHG emissions and related costs for higher-emitting industries;
- regulatory uncertainty given the rapid development of climate change law in the US 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;
- direct and indirect effects of higher energy costs;
- financial disclosure and compliance obligations under Securities and Exchange Commission rules and state laws;
- adherence to the Equator Principles, if applicable, which include requirements for climate impacts;
- impacts to coastlines, ports and other infrastructure related to increased storm intensity and rising sea levels;
- impacts to 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.

**UPDATE AND TRENDS****Emerging trends**

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

The election of Joe Biden and a Democratic majority in both houses of Congress represents a sea change in terms of US climate change policy. While former president Donald Trump withdrew the US from the Paris Agreement, President Biden promptly rejoined the Paris Agreement and has begun to reverse many of the Trump-era regulatory rollbacks related to both environmental and climate change programmes. President Biden has issued several executive orders on climate change, has appointed climate change experts to key posts, and is taking a whole-of-government approach to climate change regulation and enforcement. Congress is also taking action, both on bipartisan measures (such as infrastructure spending for electric vehicles) and on more contentious issues.

Two infrastructure bills are currently under consideration in Congress. A US\$1.1 trillion bipartisan package has passed the US Senate and appears likely to pass the House. It includes a variety of climate-related provisions such as support for vehicle electrification, carbon capture and storage, hydrogen fuels, hydroelectric power and nuclear power. A second package, worth approximately US\$3.5 trillion and which is likely to be supported solely by Democrats, is also under consideration. Although no legislative language has yet been produced, this legislation, if it passes, is likely to include major expansions of renewable energy tax credits, tax credits for carbon capture and storage, a national clean energy standard, and a variety of programmes aimed at encouraging electrification of the transportation system, encouraging development of renewable energy on federal lands and the outer continental shelf, a Civilian Climate Corps, and a variety of other programmes aimed at combating climate change.

Many states also have continued or increased climate regulation at the state level and through regional programmes. At present, 20 states have net-zero GHG emissions targets, representing a sizeable majority of the US economy. These federal and state actions are likely to lead to increased GHG regulation and action on climate change in the next one to three years.

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