

THE ENVIRONMENT
AND CLIMATE
CHANGE LAW
REVIEW

THIRD EDITION

Editor
Theodore L Garrett

THE LAWREVIEWS

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PREFACE

Environmental law is global in its reach. Multinational companies make business plans based on the laws and regulations of the countries in which they are headquartered and have manufacturing facilities as well as the countries in which they distribute and sell their products. Moreover, multinational companies have global environmental, health and safety goals and practices that tend to be worldwide in their scope for reasons of policy and operational consistency.

For these and other reasons, this third edition of *The Environment and Climate Change Law Review* is timely and significant. This book offers a review, by leading environmental lawyers, of significant environmental laws and issues in their respective countries around the world, with updates since last year's edition.

Climate change continues to dominate international environmental efforts, and we have also witnessed efforts to promote sustainability. Many countries are making efforts to promote conservation and renewable or green energy. Changes in reliance on coal and nuclear energy have impacts on the demand for other energy sources. All of these changes have impacts on efforts to reduce greenhouse gases.

Environmental law continues to change and evolve, as new regulations are adopted and existing rules are amended or challenged in courts or interpreted by agencies. In the United States, 2017 has seen the election of a new President and an administration that have different priorities in the related areas of environment and energy. Future editions of this book will continue to focus on changes and developments.

This book presents an overview and, of necessity, omits many details. The book should thus be viewed as a starting point rather than a comprehensive guide. Each chapter of this book, including mine, represents the views of the author in his or her individual capacity, and does not necessarily reflect the views of the authors' firms or clients, or the authors of other chapters, or my views as the editor. This book does not provide legal advice, which should be obtained from the reader's own lawyers.

I wish to thank the many authors who contributed their time and expertise to the preparation of the various chapters to this book. I also wish to thank the editors at Law Business Research for their continued attention to this project. We hope this book helps you to gain a better understanding of environmental law in various countries around the globe.

Theodore L Garrett

Covington & Burling LLP

Washington, DC

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January 2019

EUROPEAN UNION

Jacquelyn F MacLennan and Tallat S Hussain¹

I INTRODUCTION

The current EU environment and climate change policy objectives are set out in the Seventh Environmental Action Programme, which guides EU environment policy until 2020.² The objectives are to protect, conserve and enhance the European Union's natural capital; turn the European Union into a resource-efficient, green and competitive low-carbon economy; and safeguard the European Union's citizens from environment-related pressures and risks to health and well-being.³

Recent initiatives include overhauling the European Union's current environmental legislative framework 'to make it fit for purpose'⁴ and further encouraging 'Green Growth'⁵ to turn the European Union into a resource-efficient, green and competitive low-carbon economy. The European Commission also recently announced a Plastics Strategy⁶ and proposed new rules banning or reducing consumption of single-use plastics.⁷ The European Union is committed to its 2030 targets to cut greenhouse gas emissions by 40 per cent and to improve energy efficiency by 27 per cent.⁸

1 Jacquelyn F MacLennan is a partner and Tallat S Hussain is environmental counsel at White & Case LLP. The authors wish to thank Charlotte Van Haute and Vanessa Kempeneers for their assistance.

2 In November 1973, the First Environmental Action Programme was agreed, reflecting concerns about the 'limits of growth' discussed at the first UN Conference on Environment in Stockholm in 1972. In March 2018, the European Parliament adopted a report on the implementation of the Programme, see <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+REPORT+A8-2018-0059+0+DOC+PDF+V0//EN>, accessed 5 December 2018.

3 The tools available for the European Union to achieve these goals are: better implementation of legislation; better information by improving the knowledge base; more and wiser investment for environment and climate policy; and full integration of environmental requirements and considerations into other policies, <http://ec.europa.eu/environment/action-programme>, accessed 5 December 2018.

4 Mission Statement of the President of the European Commission to the Commissioner for Environment, Maritime Affairs and Fisheries https://ec.europa.eu/commission/sites/cwt/files/vella_en.pdf, accessed 5 December 2018.

5 See http://ec.europa.eu/environment/green-growth/index_en.htm, accessed 5 December 2018.

6 See http://europa.eu/rapid/press-release_IP-18-5_en.htm, accessed 5 December 2018.

7 See https://ec.europa.eu/commission/news/single-use-plastics-2018-may-28_en, accessed 5 December 2018.

8 EU 2030 Climate & Energy Framework http://ec.europa.eu/clima/policies/strategies/2030_en, accessed 5 December 2018. Member States are scheduled to submit their draft National Climate and Energy Plans for the achievement of the 2030 climate and energy targets to the Commission by the end of 2018.

In the wake of the Paris Agreement⁹ and reflecting the European Union's prominent role in combating climate change impact, the political focus remains on environmental sustainability and tackling climate change.¹⁰ This is further reflected in the Commission's new long-term strategy to reach a climate-neutral economy by 2050. The importance of reducing CO₂ emissions by 2030 was underscored by the President of the European Commission in his 2018 State of the Union Address.¹¹ The proposed EU budget for the period 2021 to 2027 also foresees increased funding to support environment and climate action.

II LEGISLATIVE FRAMEWORK

Environmental legislation in the European Union does not have a long history. The European Union's founding treaty, the Treaty of Rome, made no mention of environmental policy, and it was not until a 1973 European Council Declaration¹² that environmental issues were even addressed in EU law and policy. Over the years and through various treaty revisions, the European Union has developed an environmental protection and climate change framework.¹³ Today, Article 3(3) of the Treaty on European Union (TEU), inserted by the 2009 Lisbon Treaty, lists among the European Union's objectives 'sustainable development . . . based on . . . inter alia a high level of protection and improvement of the quality of the environment'. Environmental policy is now listed as an element in the completion of the internal market through Article 114(3) of the Treaty on the Functioning of the European Union (TFEU).

Article 194 TFEU, which is the legal basis for the adoption of measures in the field of energy, requires EU policy to be exercised with regard to preserving and improving the environment, as well as promoting energy efficiency and energy saving and the development of new and renewable forms of energy. The TFEU contains a specific section on environmental policy in Title XX. Article 191(1) provides that the European Union shall contribute to:

- a* preserving, protecting and improving the quality of the environment;
- b* protecting human health;
- c* prudent and rational utilisation of natural resources; and
- d* promoting measures at an international level¹⁴ to deal with regional or worldwide environmental problems, and in particular combating climate change.

9 http://unfccc.int/paris_agreement/items/9485.php, accessed 5 December 2018.

10 See for example the European Commission's reaction to the signing of the Paris Agreement http://ec.europa.eu/clima/policies/international/negotiations/paris_en, accessed 5 December 2018.

11 See https://ec.europa.eu/commission/sites/beta-political/files/soteu2018-speech_en_0.pdf, accessed 5 December 2018.

12 Declaration of the Council of the European Communities and of the representatives of the Governments of the Member States meeting in the Council of 22 November 1973 on the programme of action of the European Communities on the environment OJ C 112, 20.12.1973, pp. 1–53. In 1967, the Directive for harmonised classification and the labelling of dangerous chemicals was adopted (but not finalised until 1973).

13 See Sections II to IV for important parts of that framework; see also the Commission's website for an overview, http://ec.europa.eu/environment/index_en.htm, accessed 5 December 2018.

14 The European Union is also contributing to the implementation of the UN Sustainable Development Goals, which are now included in the 2030 Agenda for Sustainable Development adopted by the European Union and its Member States, see http://ec.europa.eu/environment/sustainable-development/SDGs/implementation/index_en.htm, accessed 5 December 2018.

To attain these objectives, the following principles apply. Measures should be adopted on the basis of:

- a* the highest level of protection taking into account the diversity of situations in the various regions of the European Union;
- b* the precautionary principle;¹⁵
- c* preventative action;
- d* environmental damage should as a priority be rectified at source; and
- e* the polluter should pay.¹⁶

To implement these principles, the EU legislature is empowered to adopt legal acts (such as directives and regulations).¹⁷

The European Union has moved towards adopting environmental measures in the form of regulations that are directly applicable in the law of Member States, such as the fundamentally important Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Regulation regarding chemicals.¹⁸ The other mechanism typically used for environmental legislation in the European Union is a directive, which must be transposed into national law, but Member States have discretion in terms of the form of implementing measures.¹⁹ Some of the more significant directives are the EU Habitats Directive,²⁰ the Waste Framework Directive,²¹ the Air Quality Framework Directive²² and the Industrial Emissions Directive.²³ The EU emissions trading scheme (EU ETS) is one of the more far-reaching EU

15 The precautionary principle is an approach to risk management that is based on the possibility that a given policy or action might cause harm to the public or the environment and if there is still no scientific consensus on the issue, the policy or action in question should not be pursued. Once more scientific information becomes available, the situation should be reviewed.

16 These were introduced into the Treaties by the Single European Act 1987 and are now contained in Article 191(2) TFEU.

17 EU environmental law must take account of available scientific and technical data, environmental conditions in the various geographic regions of the European Union, the potential benefits and costs of action or inaction, and the economic and social development of the European Union as a whole as well as the balanced development of its regions (see Article 192(3) TFEU). Legal acts adopted pursuant to Article 192 TFEU do not prevent Member States from maintaining or introducing more stringent protection measures, so long as such measures are compatible with the TEU and TFEU and are notified to the Commission (see Article 193 TFEU).

18 Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC OJ L 396, 30 December 2006, pp. 1–850.

19 Article 288 TFEU provides: '[t]o exercise the Union's competences, the institutions shall adopt regulations, directives, decisions, recommendations and opinions'.

20 Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

21 Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives (Text with EEA relevance) OJ L 312, 22 November 2008, pp. 3–30.

22 Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe OJ L 152, 11 June 2008, pp. 1–44.

23 Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) Text with EEA relevance OJ L 334,

measures, as it also links to the Kyoto Protocol emission reduction and trading mechanisms.²⁴ Currently in its third phase (2013–2020), the EU ETS sets an EU-wide cap on emissions of certain greenhouse gases and allocates allowances by auction (rather than for free, as was the approach for the first and second phases). The European Union recently published new rules on the fourth phase of the EU ETS, which will apply for the period 2021 to 2030.²⁵

The European Union may also enter into international agreements on environmental protection with other countries and international organisations (Articles 191(1) and (4) TFEU). These may contain obligations that must be implemented into EU law. For example, the European Union has acceded to the Aarhus Convention²⁶ and the Kyoto Protocol,²⁷ and on 5 October 2016 to the historic Paris Agreement, which aims to limit global warming well below 2°C above pre-industrial levels.²⁸

Finally, and beyond the European Union's specific environmental competences, the TFEU contains a horizontal environmental clause in Article 11, which requires environmental protection to be integrated into the definition and implementation of all EU policies and activities, in particular with a view to promoting sustainable development.²⁹ This statement is echoed in Article 37 of the Charter of Fundamental Rights of the European Union (the Charter), which was incorporated into the EU Treaty from the Lisbon Treaty in 2009), raising the status of environmental protection to a fundamental right.

After considerable criticism about the overreach of EU initiatives in the environment space, the Commission has narrowed its approach, as reflected in its statement 'when proposing new policies and laws, the Commission is focusing on the things that really do need to be done by the European Union, and makes sure they are done well.'³⁰

III THE REGULATORS

The primary policymaker and enforcer of EU environmental and climate change rules is the European Commission (the Commission). While EU environmental legislation is

17 December 2010, pp. 17–119. Note that the transposition deadlines for these directives have passed.

24 Kyoto Protocol to the United Nations Framework Convention on Climate Change, adopted on 11 December 1987.

25 See <https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1543233008872&turi=CELEX:32018L0410> accessed 5 December 2018.

26 UNECE Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, adopted on 25 1998, www.unece.org/env/pp/treatytext.html, accessed 5 December 2018; the Aarhus Convention has been implemented through various EU directives, including Directive 2003/4/EC of the European Parliament and of the Council of 28 January 2003 on public access to environmental information, as well as regulations which align the internal procedures of EU institutions to the Convention.

27 The Kyoto Protocol sets internationally binding emission reduction targets. Both the European Union and its Member States are signatories.

28 The Paris Agreement, adopted on 12 December 2015 and entered into force on 4 November 2016, http://unfccc.int/paris_agreement/items/9485.php, accessed on 5 December 2018. A work programme to fully implement the Paris Agreement was published on 20 June 2017.

29 On 27 June 2017, the European Parliament published a report on 'EU action for sustainability', see <http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+REPORT+A8-2017-0239+0+DOC+PDF+V0//EN>, accessed 5 December 2018.

30 See, e.g., https://ec.europa.eu/info/law/law-making-process/planning-and-proposing-law/better-regulation-why-and-how_en, accessed 5 December 2018.

scrutinised and formally adopted by the European Council and the European Parliament, the Commission acts as the initial proposer of legislation in the EU legislative process. Article 17 TEU identifies the Commission's role as ensuring the application of the Treaties, including their environmental provisions, and secondary measures (such as directives and regulations). The Commission is also often described as the 'Guardian of the Treaties' for the European Union.³¹ If the Commission considers that a Member State has failed to fulfil its EU environmental law (or other) obligations, it may bring infringement proceedings, as described in Section IV, *infra*.

The department of the Commission responsible for fulfilling its general functions in the environmental sphere is the Directorate-General for Environment, which has a staff of just over 500. In 2010, a new Directorate-General for Climate Action was created, responsible for dealing with consequences of climate change and implementing the EU ETS.³² The Directorate-General for Energy is responsible for energy policy, and these three Directorate Generals have to work together closely, recognising the importance of energy policy in creating a sustainable environment.

Specialised bodies, offices and agencies regulate specific sectors and aspects of EU environmental law and policy. The European Chemical Agency, for example, is responsible for the registration, evaluation, and potential authorisation or restriction of chemicals under the REACH Regulation. Other important bodies are the European Food Safety Authority and the European Integrated Pollution Prevention and Control Bureau. In addition, the European Environment Agency is responsible for providing information on the environment (including in the energy, industry and transport sectors).³³

IV ENFORCEMENT

The Commission and other EU bodies with a role in environmental policy are overseen by the Court of Justice of the European Union (CJEU, constituted by the General Court and the Court of Justice). Pursuant to Article 263 TFEU, the CJEU has responsibility for reviewing the legality of legislative acts (such as regulations and directives) and other acts of the Commission and other EU bodies, offices or agencies intended to produce legal effects in relation to third parties.³⁴ As well as Member States and EU institutions,³⁵ individuals and non-government organisations (NGOs) may challenge EU legal acts. For example, in 2018, 10 families from Portugal, Germany, France, Italy, Romania, Kenya, Fiji, and Sáminuorra (a Swedish Youth Association), brought an action in the EU General Court seeking to compel the European Union to make more stringent greenhouse gas emission reductions than the

31 http://eur-lex.europa.eu/summary/glossary/european_commission.html, accessed 5 December 2018.

32 www.eea.europa.eu/data-and-maps/data-providers-and-partners/directorate-general-for-climate-action, accessed 5 December 2018.

33 Established by the European Economic Community (EEC) Regulation 1210/1990 (amended by EEC Regulation 933/1999 and EC Regulation 401/2009), the European Environment Agency has been operational since 1994. It has 33 member countries, including the 28 EU Member States and Iceland, Liechtenstein, Norway, Switzerland and Turkey, www.eea.europa.eu, accessed 5 December 2018.

34 For some of the more significant cases before the CJEU relating to environmental issues such as air, waste, water and nature conservation see http://ec.europa.eu/environment/legal/law/pdf/leading_cases_en.pdf, accessed 5 December 2018.

35 The EU institutions include the Commission, Council and European Parliament.

40 per cent target by 2030.³⁶ However, obtaining standing to bring an action is notoriously difficult for individuals and NGOs, particularly in the environmental context.³⁷ As a result, EU environmental legislation is often subject to challenge in national courts, after it has been implemented into national law. Questions relating to the legality of EU measures may reach the CJEU if a preliminary ruling is requested by a national judge.³⁸

If the Commission considers a Member State has failed to fulfil an obligation under the Treaties, including complying with EU environmental treaty obligations and implementing EU legal acts in the environmental sphere, it is responsible for bringing infringement proceedings against the Member State in question, under Article 258 TFEU. The Commission will first deliver a reasoned opinion on the matter after giving the Member State concerned the opportunity to make submissions. If the Member State concerned does not comply with the opinion of the Commission within the prescribed period, the Commission may bring the matter before the CJEU.³⁹ There are numerous examples of the Commission using Article 258 TFEU to ensure that Member States properly implement EU environmental legislation, such as directives like the Waste Framework Directive.

For example, in a recent case against the UK government, the CJEU found a Welsh coal plant, Aberthaw power station, in breach of the nitrogen oxide (NO_x) emissions limits set out in the Large Combustion Plants Directive (Directive 2010/75).⁴⁰ The CJEU judgment confirmed the Commission's finding that the power station had emitted more than double the relevant NO_x since 2008. Consequently, the United Kingdom is required to take measures necessary to comply with the judgment and if it still fails to act, the Commission may open another infringement procedure under Article 260 TFEU, with only one written warning before referring it back to the CJEU.⁴¹ The CJEU has the power to impose a financial penalty on a non-compliant Member State, depending on the duration and severity of the infringement. Recent examples of penalties being imposed by the CJEU have been against Italy and Greece in the context of the Waste Framework Directive.⁴² These cases demonstrate the magnitude of financial penalties that the CJEU may impose on Member States that do not comply with its judgments: Greece was ordered to pay a lump sum of €10 million and €14.52 million for every further six months of non-compliance, and Italy was ordered to pay a €40 million lump sum and €42.8 million for every further six months of non-compliance.

36 Case T-330/18 *Carvalho and Others v. Parliament and Council*.

37 See Article 263, Paragraph 4, TFEU and Case 25/62 *Plaumann & Co. v. Commission* [1963] ECR 95, at 107; and C-583/11 *P. Inuit Tapiriit Kanatami and Others v. European Parliament and Council of the European Union*, ECLI:EU:C:2013:625. The Commission recognises the access to justice concern and in April 2017 issued an interpretative communication aimed at providing clarity on the application of the law; see http://ec.europa.eu/environment/aarhus/pdf/notice_accessjustice.pdf, accessed 5 December 2018.

38 See Article 267 TFEU.

39 The Commission's power of enforcement under Article 258 TFEU is discretionary <http://ec.europa.eu/environment/legal/law/procedure.htm>, accessed 5 December 2018.

40 C-304/15, *Commission v. United Kingdom*, ECLI:EU:C:2016:706.

41 The implications of Brexit for UK environmental policy are not covered in this chapter.

42 C-378/13, *European Commission v. Hellenic Republic*, ECLI:EU:C:2014:2405 and C-196/13, *European Commission v. Italian Republic*, ECLI:EU:C:2014:2407.

To facilitate the finding of liability for environmental damage in the European Union as a whole, in 2004 the Environmental Liability Directive⁴³ (ELD) was adopted,⁴⁴ based on the ‘polluter pays’ principle. Under the ELD, operators carrying out dangerous activities⁴⁵ have strict liability for environmental damage.⁴⁶ Operators carrying out other activities are liable for fault-based damage to protected species or natural habitats, provided there is a causal link.⁴⁷ Considering the polluter pays principle, the CJEU recently confirmed that the ELD does not give a basis for Member States to require current owners of polluted sites, who did not themselves cause the pollution, to adopt preventative or remedial measures to deal with the pollution.⁴⁸ On 1 June 2017, the CJEU held that the ELD applies *ratione temporis* to environmental damage that occurred after 30 April 2007, even if the damage originated from a facility that was authorised to operate before that date.⁴⁹

V REPORTING AND DISCLOSURE

EU law does not provide for reporting and disclosure requirements for violation of permits or environmental regulations or contamination on property. This is dealt with at the Member State level. Matters such as whistle-blower protection are also dealt with in national law at a Member State level. There are, however, mechanisms for disclosure of potential environmental liabilities in financial statements and reporting. Under the Non-Financial Reporting Directive, public entities with more than 500 employees should disclose in their management reports relevant and useful information on their policies, main risks and outcomes relating to, among other things, environmental matters.⁵⁰ These rules on non-financial reporting were required to be transposed into Member States’ law by 6 December 2016.⁵¹

43 Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage.

44 On 28 February 2017, the Multi-Annual Work Programme (2017–2020) ‘Making the Environmental Liability Directive more fit for purpose’ has been developed in response to the REFIT evaluation. The goal of the work programme is to make the ELD deliver better on its original objectives (to prevent and to remedy environmental damage based on the polluter-pays principle) and thus to contribute to a better environment by preserving natural resources (biodiversity, water, land) in the European Union. The Multi-Annual Work Programme is aimed to be updated annually to changing developments, growing knowledge and new needs: http://ec.europa.eu/environment/legal/liability/pdf/MAWP_2017_2020.pdf, accessed 5 December 2018.

45 Environmental Liability Directive, Annex III.

46 *ibidem.*, see Article 2 et seq.

47 *ibidem.*, Article 3. What constitutes ‘conduct damaging to the environment’ sufficient to be considered ‘criminal’ by Member States is set out in the Environmental Crime Directive (Directive 2008/99/EC of the European Parliament and of the Council of 19 November 2008 on the protection of the environment through criminal law (Text with EEA relevance) OJ L 328, 6.12.2008, pp. 28–37).

48 C-534/13 *Ministero dell’Ambiente e della Tutela del Territorio e del Mare and Others v. Fipa Group srl and Others*, ECLI:EU:C:2015:140.

49 C-529/15 – *Folk*, ECLI:EU:C:2017:419.

50 Directive 2013/34/EU of the European Parliament and of the Council of 26 June 2013 on the annual financial statements, consolidated financial statements and related reports of certain types of undertakings, amending Directive 2006/43/EC of the European Parliament and of the Council and repealing Council Directives 78/660/EEC and 83/349/EEC (Text with EEA relevance) (OJ L 182, 29.6.2013, p. 19), see in particular Articles 19 and 29a.

51 http://ec.europa.eu/finance/company-reporting/non-financial_reporting/index_en.htm#related-documents, accessed 5 December 2018.

VI ENVIRONMENTAL PROTECTION

As discussed above, over the years, the European Union has developed a complex regime of environmental protection legislation on air and water quality, chemicals, and solid and hazardous waste, which is law in EU Member States. Other initiatives of the European Union (e.g., concerning single-use plastics) are only at an early stage at present.

i Air quality

Air Quality Framework Directive

Directive 2008/50 on ambient air quality and cleaner air for Europe (Air Quality Framework Directive (AQFD))⁵² updates and draws into one instrument almost all EU directives on air quality management, including air quality standards and targets for particular pollutants such as SO₂, NO_x, lead (Pb), carbon monoxide (CO), benzene, PM-10, PM-2.5 and ozone.

The AQFD first sets up a regime for the monitoring and assessment of ambient air quality, for the collection, exchange and dissemination of air quality information and to better understand the impacts of air pollution for the development of appropriate policies.⁵³ Air quality assessment occurs in ‘zones of agglomerations’,⁵⁴ established by Member States. This allows areas with relatively common air quality characteristics to be assessed together. Physical monitoring is only required in zones where concentrations of relevant pollutants are above certain thresholds set by the Directive.⁵⁵ Otherwise, modelling or objective-estimation techniques suffice to generate the relevant data.⁵⁶ In all events, scientific methods are central to Member States establishing and meeting their assessment obligations.

The AQFD also sets up an air quality management system⁵⁷ using a series of environmental quality standards (EQSs) and targets. These depend on the following parameters: the pollutants at issue, their respective risks to human and environmental health, current knowledge about how to control them and the costs involved in doing this. Different regulatory obligations and consequences attach to each EQS. EQSs include limit values as part of national exposure reduction targets, target values and alert thresholds. Alert thresholds are defined by the AQFD as a level beyond which there is a risk to human health from brief exposure for the population as a whole.⁵⁸

Second, the AQFD requires Member States to draw up air quality plans⁵⁹ and short-term action plans,⁶⁰ including transboundary air pollution plans, where applicable,⁶¹ for example, where levels of air pollution exceed limits or target values.⁶² Such plans must outline how to achieve the limits or target values or appropriate measures to ensure that any exceedance period is minimised. The short-term action plan obligation is triggered by levels of pollutants

52 Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe OJ L 152, 11.6.2008, pp. 1–44.

53 *ibidem.*, Recital 21.

54 Article 4.

55 Annex II.

56 Article 6(3) and (4).

57 Chapter III.

58 Article 2(10).

59 Article 23.

60 Article 24.

61 Article 25.

62 Article 23(1).

exceeding one or more alert thresholds⁶³ and must contain measures to be taken in the short term to reduce the risk or duration of exceedance of alert thresholds. Where information and alert EQS thresholds are exceeded, the AQFD requires Member States to inform the public and make certain air quality information available to the public.⁶⁴

A recent example of the AQFD's requirements in action was the case brought against the United Kingdom before the CJEU, where the CJEU determined that if a Member State finds that limit values under the Directive cannot be met before the AQFD deadline and seeks a deadline postponement (for a maximum of five years), that Member State is required to make an application for the postponement of the deadline by drawing up an air quality plan demonstrating how those limits will be met before the new deadline.⁶⁵ In another recent case brought before the CJEU against Poland, the Court found that Poland had infringed EU law by exceeding the limit values for PM-10 without ensuring in its air quality plans that the period for putting an end to those exceedances was as short as possible.⁶⁶ The Commission monitors Member States to ensure they closely adhere to the various targets and standards of the AQFD. The Commission recently sent final warnings to nine Member States (the Czech Republic, Germany, Spain, France, Italy, Hungary, Romania, Slovakia and the United Kingdom) for exceeding air pollution limits.⁶⁷

Industrial emissions

The Industrial Emissions Directive (IED)⁶⁸ sets up a scheme whereby large-scale industrial installations must obtain permits in order to operate. In doing so, it aims to reduce harmful industrial emissions. Around 50,000 installations carrying out the industrial activities listed in the IED⁶⁹ are required to operate in accordance with a permit (granted by authorities in Member States),⁷⁰ which contain conditions set in accordance with the IED. For example, the permit must take into account the whole environmental performance of the plant (including emissions, use of raw materials and energy efficiency).⁷¹ The emission limit values must be based on best available techniques (BATs).⁷² BAT reference documents (BREFs) – published by the Commission – provide information on specific EU industrial sectors, the techniques and processes used in this sector, current emission and consumption levels, techniques to consider in the determination of the BAT and emerging techniques. The Commission has recently published a BREF in respect of large combustion plants.⁷³

63 Article 24(1).

64 Chapter V and Articles 19 and 26.

65 C-404/13, *The Queen, on the application of ClientEarth v. The Secretary of State for the Environment, Food and Rural Affairs*, ECLI:EU:C:2014:2382.

66 C-336/16, *Commission v. Poland*, ECLI:EU:C:2018:94.

67 See http://europa.eu/rapid/press-release_IP-18-348_en.htm, accessed 5 December 2018.

68 Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) Text with EEA relevance OJ L 334, 17 December 2010, pp. 17–119.

69 That meet the criteria in Annex I of the IED.

70 *Ibidem*, Article 4.

71 Article 5 et seq.

72 Article 11.

73 http://eippcb.jrc.ec.europa.eu/reference/BREF/LCP/JRC107769_LCP_bref2017.pdf, accessed 5 December 2018.

For certain activities, such as large combustion plants, waste incineration and co-incineration plants, solvent-using activities and titanium dioxide production, the IED also sets EU-wide emission values for certain pollutants.⁷⁴ National competent authorities may set less strict emission values in specific cases where an assessment shows that achieving the emission level associated with BATs would lead to disproportionately higher costs compared to the environmental benefits owing to geographical location, local environmental conditions or the technical characteristics of the installation.⁷⁵ In that regard, the IED contains a certain flexibility for large combustion plants (e.g., a limited lifetime derogation). Finally, the IED requires Member States to set up a system of environmental inspections.⁷⁶ Site visits must take place at least every one to three years, using risk-based criteria.⁷⁷ The IED requires the public to have access to permit applications, permits and the result of the monitoring of releases.⁷⁸

Industrial emissions are also regulated through the Medium Combustion Plants Directive, which regulates emissions of SO₂, NO_x and dust from the combustion of fuels in plants with a rated thermal input equal to or greater than 1 megawatt (MWth) and less than 50MWth.⁷⁹

ii Water quality

The European Union's regulation of water quality standards is primarily through Directive 2000/60/EC, the Water Framework Directive.⁸⁰ Addressing both diffuse and point-source pollution, and establishing binding targets for water quantity and quality in relation to a wide range of water bodies, the Directive is both comprehensive and holistic.⁸¹ There is also issue-specific legislation such as the Directive on environmental quality standards (water policy)⁸² and the Directive on groundwater⁸³ (requiring Member States to take all measures necessary to prevent inputs into groundwater of hazardous substances).

The Water Framework Directive contains four central provisions for pollution control standards in river basin districts – the 'area of land and sea, made up of one or more neighbouring river basins together with their associated groundwaters and costal waters'.⁸⁴

74 Cited above, Part 4.

75 *ibidem.*, Article 15.

76 Article 23.

77 *ibidem.*

78 Article 24.

79 Directive (EU) 2015/2193 of the European Parliament and of the Council of 25 November 2015 on the limitation of emissions of certain pollutants into the air from medium combustion plants (Text with EEA relevance) OJ L 313, 28.11.2015, pp. 1–19.

80 Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy.

81 Compare with European Community Water Policy COM (1996) 59 final.

82 Directive 2008/105/EC of the European Parliament and of the Council of 16 December 2008 on environmental quality standards in the field of water policy, amending and subsequently repealing Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC of the European Parliament and of the Council. OJ L 348, 24.12.2008, pp. 84–97.

83 Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2000 on the protection of groundwater against pollution and deterioration.

84 The Waste Framework Directive, Article 3(1); Member States must also draw up river basin management plans, either individually or collectively, for transboundary rivers, and publish their plans and send copies to the Commission.

First, Member States ‘aim to achieve’ good surface water status, covering inland, coastal and transitional waters (including both good chemical and ecological status)⁸⁵ by ‘ensuring a balance between abstraction and recharging of groundwater’.⁸⁶ The CJEU has held that the obligation under the Directive to prevent the deterioration of water and to enhance water quality is legally binding.⁸⁷ Second, Member States must ensure that all relevant discharges into surface waters are controlled by emission controls based on best available techniques, applicable emission limit values, or in the case of diffuse impacts, best environmental practices set out in other EU legislation.⁸⁸ Member States are also obliged to cease or phase out the discharge, emission or loss of priority hazardous substances and must also progressively reduce intrinsically hazardous substances, such as heavy metals. Finally, measures must be put in place to prevent deterioration in the existing quality of surface and ground waters.⁸⁹

iii Chemicals

Chemicals are regulated at an EU level by the REACH Regulation.⁹⁰ In principle, all chemical substances fall within the scope of that Regulation, whether they are used in industrial processes or day-to-day products, as well as products made of those substances.⁹¹ Moreover, REACH establishes obligations for the entirety of the supply chain. In general, to comply with REACH, companies must identify and manage the risks linked to the substances they manufacture and market or import in the European Union: they have to demonstrate to the European Chemical Agency (ECHA) how the substances can safely be used and must communicate risk management measures to users. If the risk cannot be managed, ECHA, together with the Commission and Member States, can ban hazardous substances or decide to restrict a use or make it subject to prior authorisation.

Regarding registration, companies are required to communicate a detailed registration dossier containing hazard information and, where relevant, an assessment of the risks that the use of the substance may pose and how these risks should be controlled.⁹² Registration applies to substances on their own, substances in mixtures and certain cases of substances in articles.⁹³ Chemical substances that are already regulated by other legislation, such as medicines or radioactive substances, are partially or completely exempted from REACH requirements.⁹⁴ Registration is based on the ‘one substance, one registration’ principle, which means that manufacturers and importers of the same substance have to submit their registration jointly.⁹⁵ The special transitional regime for substances manufactured or imported at 1 to 100 tonnes per year, known as ‘phase-in’ substances, which were already manufactured or placed on the market before REACH entered into force, lapsed on 31 May 2018.⁹⁶ Consequently, as

85 *ibidem*, Article 4(1)(a)(ii). This was required to be done by the end of 2015.

86 Waste Framework Directive, Article 4(1)(b)(ii).

87 C-461/13, *Bund für Umwelt und Naturschutz Deutschland e.V. v. Bundesrepublik Deutschland*, ECLI:EU:C:2015:433.

88 *ibidem*., Article 10.

89 *ibidem*., Article 4(1)(a)(i).

90 Cited above.

91 *ibidem*., Title I, Chapter 1.

92 REACH Title II, Chapter 2.

93 REACH Title II, Chapters 1 and 2.

94 *ibidem*.

95 REACH Title II.

96 REACH Article 23.

of 1 June 2018, only substances with a valid registration (or exempted from REACH) are allowed on the EU market.⁹⁷ Further, substances notified under the Dangerous Substances Directive are considered registered under REACH.⁹⁸ The obligation to register substances falls on: the EU manufacturer or importer of substances on their own or in a mixture; EU producers or importers of articles meeting the criteria set out in the guidance on requirements for substances in articles;⁹⁹ and 'only representatives' established in the European Union and appointed by a manufacturer, formulator or article producer outside the European Union to fulfil the registration obligations of importers.¹⁰⁰ Recently, the CJEU held that substances that have been imported into the European Union but not registered under REACH – and as such are illegally in the European Union but have not been put on the EU market – may be exported outside the European Union to a third state. This export does not violate REACH.¹⁰¹

ECHA and Member State representatives then evaluate the information submitted by companies to examine quality of the registration dossiers, any testing proposals, and to clarify whether a given substance constitutes a risk to human health or the environment.¹⁰²

A possible consequence of evaluation is that a substance is required to be authorised. The authorisation procedure aims at assuring that the risks from substances of very high concern (SVHCs) are properly controlled and that these substances are progressively replaced by suitable alternatives.¹⁰³ SVHCs are those: meeting the criteria for classification as carcinogenic, mutagenic or toxic for reproduction (CMR substances);¹⁰⁴ are persistent, bioaccumulative and toxic (PBT) or very persistent and very bioaccumulative (vPvB);¹⁰⁵ or are identified on a case-by-case basis, for which there is scientific evidence of probable serious effects that cause an equivalent level of concern as with CMR or PBT/vPvB substances.¹⁰⁶ It has recently been clarified that ECHA's decisions to identify substances as SVHCs produces legal effects in relation to third parties because they give rise to, among other things, information obligations.¹⁰⁷ After a two-step regulatory process, SVHCs may be included in the Authorisation List and become subject to authorisation.¹⁰⁸ These substances cannot be placed on the market or used after a given date, unless an authorisation is granted for their specific use, or the use is exempted from authorisation.¹⁰⁹ Manufacturers, importers or downstream users of a substance on the Authorisation List can apply for authorisation.¹¹⁰

97 See e.g. <https://echa.europa.eu/-/300-people-gather-in-helsinki-for-last-minute-advice-ahead-of-the-final-registration-deadline-for-chemicals>, accessed 5 December 2018.

98 REACH Title I.

99 *ibidem*.

100 *ibidem*.

101 C-535/15, *Freie und Hansestadt Hamburg v. Jost Pinckernelle*, ECLI:EU:C:2017:315.

102 REACH Title IV.

103 Article 55 et seqq.; a recent case (C-106/14, *Fédération des entreprises du commerce et de la distribution (FCD) and Fédération des magasins de bricolage et de l'aménagement de la maison (FMB) v. Ministre de l'écologie, du développement durable et de l'énergie*, ECLI:EU:C:2015:576) has clarified the scope of the duty to notify under REACH in respect of SVHCs.

104 REACH Title V.

105 REACH Annex XIII.

106 REACH Title VII.

107 C-290/13 *P. Rütgers Germany GmbH and Others v. European Chemicals Agency*, ECLI:EU:C:2014:2174.

108 *ibidem*.

109 REACH Title VII, Chapter 2.

110 REACH Title VII.

Moreover, Member States, or ECHA on request of the Commission, can propose restrictions, that is to say limiting or banning the manufacture, placing on the market or use of a substance, if it is felt that a risk needs to be addressed on an EU-wide basis.¹¹¹ A restriction applies to any substance on its own, in a mixture or in an article, including those that do not require registration.¹¹² It can also apply to imports.¹¹³ ECHA can also propose a restriction on articles containing substances that are in the Authorisation List.¹¹⁴ In the course of the restriction process, ECHA works with experts from the Member States to provide scientific opinions on any proposed restriction that will help the Commission, together with the Member States, to take the final decision.¹¹⁵

iv Solid and hazardous waste

The overarching regime for the European Union's regulation of waste is the Waste Framework Directive.¹¹⁶ The definition of 'waste' for the purpose of the Directive is crucial as the Directive's prescriptions and regulatory controls only apply to waste, but this also creates difficulties. Waste is defined in the Directive as 'any substance or object which the holder discards or intends or is required to discard'.¹¹⁷ In its Guidance on the Interpretation of the Waste Framework Directive, the Commission gives examples in respect of the three alternatives of 'discarding':

- a 'discard' includes items thrown into a waste bin or the transfer of material from a company to a waste collector;
- b 'intention to discard' includes an operating site that indicates that it will send off-site for appropriate disposal or recovery any of its stock of raw materials that cannot be returned; and
- c 'requirement to discard' includes stockpiles of banned pesticides that must be discarded and therefore must be managed as waste.

The Directive makes certain exclusions from the scope of waste, such as gaseous effluents emitted into the atmosphere, land (*in situ*) and uncontaminated soil.¹¹⁸ It also excludes from its scope certain materials to the extent they are covered by other EU legislation – including wastewater, animal by-products and carcasses, and mining waste.¹¹⁹ By-products of industrial processes also do not constitute waste if further use of the substance or object is certain, can be used directly without any further normal industrial processing, is produced as an integral

111 REACH Title VIII.

112 *ibidem*.

113 *ibidem*.

114 *ibidem*.

115 *Ibidem*. For a list of adopted opinions see <https://echa.europa.eu/previous-consultations-on-restriction-proposals>, accessed 5 December 2018.

116 Cited above.

117 *ibidem*., Article 3(1); the definition of 'waste' has been subject to extensive and complex interpretation by the CJEU, as well as national courts, from the late 1980s to the present day, in particular as to the meanings of 'discard', 'intention to discard' and 'requirement to discard'.

118 Wastewater Framework Directive, Article 2.

119 *ibidem*.

part of the production process and further use is lawful.¹²⁰ Finally, material ceases to be waste if it meets certain ‘end-of-waste’ criteria, such as whether a market exists for the material, or if it has undergone a recovery, including recycling, operation.¹²¹

The fundamental obligations on Member States in respect of waste under the Directive are twofold. First, they must take measures to ensure that waste management is carried out without endangering human health or without harming the environment.¹²² Second, they must take measures to prohibit the abandonment, dumping or uncontrolled management of waste.¹²³ The Directive also shapes waste policy in Member States by setting out a ‘waste hierarchy’, which provides ‘a priority order in waste prevention and management legislation and policy’.¹²⁴ In descending order, the hierarchy is: waste prevention; preparing for reuse; recycling; other recovery such as energy recovery; and disposal. Waste management obligations on Member States, which apply in respect of waste producers or other holders, are also set out.¹²⁵

Stringent controls for hazardous waste (including, among other things, waste that is oxidising, flammable, toxic, ecotoxic, carcinogenic, mutagenic, corrosive or infectious) are also applied.¹²⁶ Hazardous waste cannot be mixed or diluted, unless a business has a waste management permit, the operation conforms to the best available techniques and there is no increased adverse impact on human health or the environment.¹²⁷

Recent CJEU cases have shown that certain Member States have not only failed to implement the Directive,¹²⁸ but also have failed to comply with CJEU judgments resulting from infringement proceedings (see Section III, *supra*) requiring them to adopt necessary measures to act in accordance with the Directive.¹²⁹ The Waste Framework Directive has a

120 Wastewater Framework Directive, Article 5.

121 Wastewater Framework Directive, Article 6.

122 Wastewater Framework Directive, Article 13.

123 Wastewater Framework Directive, Article 36.

124 Wastewater Framework Directive, Article 4(1).

125 Wastewater Framework Directive, Article 15.

126 Wastewater Framework Directive, Article 3(2) and Annex III.

127 Wastewater Framework Directive, Articles 17, 18(1) and 35.

128 For example, in June 2018, the Commission decided to refer Spain to the CJEU for failing to establish or revise waste management plans under the Waste Framework Directive. See http://europa.eu/rapid/press-release_IP-18-3987_en.htm, accessed 5 December 2018.

129 See, for example, C-378/13, *European Commission v. Hellenic Republic*, ECLI:EU:C:2014:2405 and C-196/13, *European Commission v. Italian Republic*, ECLI:EU:C:2014:2407. The Commission issued a report on 27 February 2017 assessing the implementation of the Waste Framework Directive (2010–2012): <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=COM:2017:0088:FIN>, accessed 5 December 2018.

series of ‘daughter’ directives: producer responsibility regimes such as under the Packaging Waste Directive,¹³⁰ the End-of-Life Vehicles Directive,¹³¹ Batteries Directive¹³² and a separate Waste Shipment Regulation.¹³³

v Plastics

In January 2018, the Commission adopted an EU-wide strategy on plastics, including a plan to make all plastic packaging on the EU market recyclable by 2030, a reduction of single-use plastics and restrictions on the use of microplastics. The Commission also adopted a Monitoring Framework, composed of a set of 10 indicators, which will measure progress towards the transition to a circular economy at EU and national levels.

On 28 May 2018, the Commission issued a proposal for a Directive banning or reducing 10 single-use plastics causing marine litter.¹³⁴ Where alternatives are readily available and affordable, the Commission proposes to ban single-use plastic products from the EU market. For products without straightforward alternatives, the Commission proposes to limit their use through a national reduction in consumption, design and labelling requirements, and waste management or clean-up obligations for producers. At the time of writing, the proposal was being discussed among the institutions (the Commission, the European Parliament and the Council).

vi Contaminated land

Land contamination is not regulated at EU level. The Commission had proposed a Soil Framework Directive in September 2006 aimed at filling this gap and providing a common strategy for the protection and sustainable use of soil.¹³⁵ However, after almost eight years without the proposal being enacted into legislation, the Commission withdrew it in April 2014, with the aim of proposing legislation again in the future.¹³⁶

VII CLIMATE CHANGE

The European Union considers itself to be a global leader in limiting emissions, decarbonising economies and other measures to limit global warming. To this end, the European Union

130 European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste.

131 Directive 2000/53/EC of the European Parliament and of the Council of 18 September 2000 on end-of-life vehicles (OJ L 269, 21.10.2000, p. 34). The Commission issued a report on 27 February 2017 assessing the implementation of the End-of-Life Vehicles Directive (2008-2011 and 2011-2014): <http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52017DC0098> accessed 5 December 2018.

132 Directive 2006/66/EC of the European Parliament and of the Council of 6 September 2006 on batteries and accumulators and waste batteries and accumulators and repealing Directive 91/157/EEC OJ L 266, 26 September 2006, pp. 1–14.

133 Regulation (EC) No. 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste.

134 See http://ec.europa.eu/environment/circular-economy/pdf/single-use_plastics_proposal.pdf, accessed 5 December 2018.

135 http://ec.europa.eu/environment/soil/process_en.htm, accessed 5 December 2018.

136 *ibidem*.

has signed the UNFCCC and Kyoto Protocol, along with its Member States, and has taken a leading role in climate change negotiations (including forming a high ambition coalition in the Paris Agreement negotiations).¹³⁷

Internally, the European Union has adopted as a central policy the ‘2030 Climate and Energy Package’,¹³⁸ a range of climate change measures with three key targets: achieving a 40 per cent cut in greenhouse gas emissions (from 1990 levels), 27 per cent of EU energy from renewables and 27 per cent improvement in energy efficiency.

The package includes the Renewable Energy Directive,¹³⁹ which sets binding national renewable energy targets for Member States,¹⁴⁰ and the Energy Efficiency Directive.¹⁴¹ In addition, an Effort Sharing Decision¹⁴² sets differential caps for Member State emissions from sectors falling outside the EU emissions trading scheme, amounting overall to a 10 per cent cut in those emissions by 2020, and the Carbon Capture and Storage Directive¹⁴³ establishes a legal framework for environmentally safe geological storage of CO₂. Further, in November 2017, the Commission proposed a new set of targets concerning the transport sector and more specifically, to lower the EU average of CO₂ emissions of new passenger cars and vans through the Clean Mobility Package.¹⁴⁴ The Commission recently proposed a new long-term strategy to reach a climate-neutral economy by 2050.¹⁴⁵ To reach a climate-neutral economy, the Commission proposes pursuing joint action in seven strategic areas:

- a energy efficiency;
- b deployment of renewables;
- c clean, safe and connected mobility;

137 http://ec.europa.eu/clima/policies/international/negotiations/paris_en, accessed 5 December 2018.

138 http://ec.europa.eu/clima/policies/strategies/2030_en, accessed 5 December 2018.

139 Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (Text with EEA relevance) OJ L 140, 5 June 2009, pp. 16–62.

140 It was recently reported that 11 EU Member States have already achieved their 2020 targets on the share of energy from renewable sources in gross final consumption of energy. Sweden had the highest share in 2016 (53.8 per cent), ahead of Finland (38.7 per cent), Latvia (37.2 per cent), Austria (33.5 per cent) and Denmark (32.2 per cent). The lowest proportions of renewables were registered in Luxembourg (5.4 per cent), Malta and the Netherlands (both 6 per cent). See <https://ec.europa.eu/eurostat/documents/2995521/8612324/8-25012018-AP-EN.pdf/9d28caef-1961-4dd1-a901-af18f121fb2d>, accessed 5 December 2018.

141 See Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC, also <https://ec.europa.eu/energy/en/news/commission-proposes-new-rule-s-consumer-centred-clean-energy-transition>, accessed 5 December 2018.

142 https://ec.europa.eu/clima/policies/effort_en, accessed 5 December 2018.

143 Directive 2009/31/EC of the European Parliament and of the Council of 23 April 2009 on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No. 1013/2006 (Text with EEA relevance) OJ L 140, 5 June 2009, pp. 114–135.

144 The overall targets for a low-emission mobility sector have been presented by the Commission in a Communication. This set of new measures includes: a proposal for a Regulation on new emission performance standards for new passenger cars and for new light commercial vehicles, the Clean Vehicle Directive, an Action Plan for the deployment of alternative fuels infrastructure across Europe, the Combined Transport Directive, the Directive on Passenger Coach Services and the battery initiative. See https://ec.europa.eu/transport/modes/road/news/2017-11-08-driving-clean-mobility_en, accessed 14 December 2017.

145 http://europa.eu/rapid/press-release_IP-18-6543_en.htm, accessed 5 December 2018.

- d* competitive industry and circular economy;
- e* infrastructure and interconnections;
- f* bio-economy and natural carbon sinks; and
- g* carbon capture and storage to address remaining emissions.¹⁴⁶

The centrepiece of the European Union's environmental and climate change regime is the EU ETS.¹⁴⁷ More than 11,000 power stations and industrial plants in 31 countries (28 EU Member States and three EEA/EFTA states), as well as from aviation activities, fall within its scope of greenhouse gas emissions reduction.¹⁴⁸ In practice, this means that the EU ETS covers around 45 per cent of the European Union's greenhouse gas emissions.¹⁴⁹ In the simplest terms, the EU ETS is a 'cap and trade' system. It works by putting a limit on overall emissions from industry sectors emitting high levels of greenhouse gases, and the limit is reduced over time. Within that limit, companies may buy and sell emission allowances as needed. Each allowance represents the right to emit one tonne of carbon dioxide equivalent (CO₂e) emissions. The number of allowances issued determines the volume of emissions permitted, and in that way emissions are 'capped'. The idea is that the cap – and thus emissions – is reduced over time.¹⁵⁰ Allowances are distributed, by allocation or auction,¹⁵¹ to installations and can be freely traded on the market. Each year, installations must surrender allowances equivalent to the amount of CO₂ emitted. In this way, the price is (at least partially) determined by the market.¹⁵²

For installations to receive free allowance allocations, they must meet the relevant sector's benchmarks.¹⁵³ For those installations that are not at a significant risk of carbon leakage, free allowances decline annually, to 30 per cent of all allowances in 2020 and no free allowances available in 2027.¹⁵⁴ The power generation sector is not eligible for free allocation, except under special conditions in a few Member States.

A market stability reserve will start operating in January 2019, which aims to address the current surfeit of allowances and make the EU ETS resilient to shocks by allowing the supply of allowances to be auctioned to be subject to adjustment.¹⁵⁵ Phase 4 of EU ETS for 2021 to 2030 has recently been published.¹⁵⁶ Phase 4 focuses on (1) strengthening the EU ETS as an investment driver by increasing the pace of annual reductions in allowances to 2.2 per cent

146 The Commission strategy does not set targets or propose new initiatives to be taken. The purpose of the strategy is to start an EU-wide debate, which should allow the European Union to adopt a strategy by early 2020 for the UNFCCC, as requested under the Paris Agreement.

147 Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC (Text with EEA relevance).

148 Notably CO₂, N₂O, methane, HCFCs and PFCs.

149 http://ec.europa.eu/clima/policies/ets_en, accessed 5 December 2018.

150 EU ETS Directive, cited above, Recitals.

151 *ibidem.*, Article 10. Allowances are either auctioned or allocated for free to address international competitiveness concerns of industry sectors that are deemed to be exposed to carbon leakage under the EU ETS Directive.

152 EU ETS Directive, Articles 3 and 5–7.

153 EU ETS Directive, Article 10(a)(12).

154 EU ETS Directive, Article 10(a)(11).

155 https://ec.europa.eu/clima/policies/ets/reform_nl, accessed 5 December 2018.

156 http://ec.europa.eu/clima/policies/ets/revision_en, accessed 5 December 2018. On 9 November 2017, the Commission and the European Parliament reached a political agreement on the revision of the ETS for

as of 2021 and reinforcing the above-mentioned market stability reserve; (2) continuing the free allocation of allowances as a safeguard for the international competitiveness of industrial sectors at risk of carbon leakage; and (3) helping industry and the power sector to meet the innovation and investment challenges of the low-carbon transition via several low-carbon funding mechanisms.

VIII OUTLOOK AND CONCLUSIONS

As part of the European Union's holistic approach to environmental sustainability, and in order to implement the European Union's 2030 climate and energy framework, the Commission introduced a 'Clean Energy For All' Package on 30 November 2016, also known as the Winter Package, which contains eight proposals, covering energy efficiency, renewable energy, the design of the electricity market and governance rules for the Energy Union, as well as buildings and transport.¹⁵⁷ The Commission considers that these proposals will elevate clean energy as the prime growth sector for the future in the European Union. The Energy Performance in Buildings Directive entered into force on 9 July 2018.¹⁵⁸ The proposed rules on renewables, energy efficiency and governance of the Energy Union have recently been approved by the European Parliament, but still had to be formally approved by the Council at the time of writing.¹⁵⁹ With the Paris Agreement ratified and the European Union's recent role in getting the global rulebook on the implementation of the Paris Agreement adopted,¹⁶⁰ the European Union continues to chart its course for a low-carbon economy, with a global effort alongside. Financing climate adaptation¹⁶¹ and stabilising global temperatures is only a small part of the European Union's environmental challenges in the new global economy. Climate change, globalisation and demographic change have the potential to 'profoundly change the context of policy-making in the future'.¹⁶² The European Union's plan beyond 2020 must reflect this.¹⁶³

the period after 2020. The text will now have to be formally approved by the European Parliament and the Council, see https://ec.europa.eu/clima/news/eu-emissions-trading-system-landmark-agreement-between-parliament-and-council-delivers-eus_en, accessed 5 December 2018.

157 <https://ec.europa.eu/jrc/en/news/energy-package-clean-energy-all-europeans>, accessed 5 December 2018.

158 Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency, available here: https://eur-lex.europa.eu/legal-content/EN/TXT/?toc=OJ%3AL%3A2018%3A156%3ATOC&uri=uriserv%3AOJ.L_.2018.156.01.0075.01.ENG, accessed 5 December 2018.

159 http://europa.eu/rapid/press-release_IP-18-6383_en.htm, accessed 5 December 2018.

160 On 7 November 2017, the Commission published a report assessing the progress made towards meeting the European Union's climate commitments two years after the adoption of the Paris Agreement: COM(2017) 646 final of 7 November 2017 'Two years after Paris, progress towards meeting the EU's climate commitments'.

161 See also the recent Commission report on the implementation of the EU Strategy on adaptation to climate change: COM(2018) 738 final of 12 November 2018.

162 www.eea.europa.eu/environmental-time-line/the-next-50-years, accessed 5 December 2018.

163 <http://ec.europa.eu/environment/action-programme>, accessed 5 December 2018.

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