CJP CLIMATE JUDICIARY PROJECT™

CLIMATE SCIENCE AND LAW FOR JUDGES

Overview of European Climate Litigation

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ENVIRONMENTAL LAW INSTITUTE

CJP CLIMATE JUDICIARY PROJECT™

Overview of European Climate Litigation

By Climate Judiciary Project Team

This module presents an overview of climate litigation across Europe. The countries evaluated in this module are primarily the states with individual members of the European Union Forum of Judges for the Environment, which submit periodic national reports on developments in environmental law in their domestic judiciaries.[1]

This module focuses on climate litigation in these countries and European regional courts, detailing emerging trends and examining how courts interact with climate science. Part One describes the scope of European climate litigation, defining climate litigation and quantitatively detailing how many of these cases are brought and where. Part Two describes the past and recent trends in European climate litigation, identifying the types of claims, defenses, and remedies frequently presented in climate litigation and how those have changed over time. Finally, Part Three focuses on when and how climate science enters the courtroom, including the kind of scientific evidence that comes before judges and how different courts treat such evidence.

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[1] *Home*, EUR. UNION F. OF JUDGES FOR THE ENV'T (EUFJE), https://www.eufje.org/index.php?lang=en. The EUFJE reports are comprised of answers from judges participating in the annual EUFJE conference. As such, any conclusions drawn from the reports are not based on official state answers; rather, the reports serve as background material for understanding European climate litigation from the perspective of individual judges throughout Europe. Similarly, because these answers are personal interpretations of the law, some judge's answers may include misinterpretations based on differing domestic laws and procedures, where different administrative procedures in one jurisdiction may be deemed unconstitutional in another. Thus, our references here to the EUFJE reports are meant to serve as an overview of European climate litigation trends, not as an authoritative view on specific laws.

I. Scope of European Climate Litigation

A. Definition

Definitions of "climate litigation" vary among scholars and civil society groups, which affects how statistics on the increase in climate litigation are reported. Many of the most cited climate litigation trackers, such as the Sabin Center's Climate Change Litigation Database and the United Nations Environment Programme's (UNEP's) Global Climate Litigation Report, use a relatively narrow definition. The Sabin Center, for example, requires climate change law, policy, or science to be "a material issue of law or fact in the case" before the Center considers the case to be climate litigation.[2] This means "cases that make only a passing reference to climate change, but do not address climate-relevant laws, policies, or actions in a meaningful way" are not included in the database.[3]

Similarly, there are inconsistencies in what type of proceedings qualify as "litigation." For example, most climate litigation trackers do not include quasi-judicial administrative proceedings, rulemaking petitions, requests for reconsideration of regulations, and other proceedings before quasi-judicial decisionmaking bodies.[4] However, many of these quasi-judicial proceedings have significant impacts on European climate policy (See Box 1).

Box 1. European Climate Policy and Investor-State Dispute Settlement Panels

Investor-State Dispute Settlement (ISDS) panels are good examples of quasi-judicial administrative proceedings with significant climate ramifications. ISDS tribunals let foreign investors pursue compensation from a State if government policies negatively affect the value of their investment. ISDS tribunals are usually the product of international trade agreements. As a result, they rely on a legal framework independent from, but "running in parallel" with, a country's domestic court system.[5] Given the ambitious environmental policies pursued by many European nations, many environmental and climate-related matters have been deferred to European ISDS panels in recent years.

For example, after countries like Spain and Italy rolled back their financial support for renewable energy investments, more than 70 ISDS disputes were filed.[6] Wholesale bans on specific economic activity also normally prompt ISDS claims, as was the case when Italy prohibited the exploration of hydrocarbons off its shoreline.[7] In such cases, ISDS panels must assess "the environmental purposes of a given host State's measures" against "the concrete magnitude and abruptness of [the measure's] impact on the acquired and secured property and rights of investors."[8] As environmental ISDS claims are expected to become more

[2] Sabin Ctr. for Climate Change L., *About*, CLIMATE CHANGE LITIG. DATABASES, https://climatecasechart.com/about/.
[3] *Id.*
[4] Jacqueline Peel & Hari M. Osofsky, *Climate Change Litigation*, 16 ANN. REV. L. & SOC. SCI. 21, 23 (2020).
[5] GIOVANNI ANTONELLI ET AL., ENVIRONMENTAL LAW BEFORE THE COURTS: A US-EU NARRATIVE, 325 (2023); *see also* ISSAM HALLAK, INVESTOR-STATE PROTECTION DISPUTES INVOLVING EU MEMBER STATES: STATE OF PLAY (2022).
[6] *Id.* at 328.
[7] Rockhopper Italia S.P.A. v. Italian Republic, ICSID Case No. ARB/17/14, Decision on the Intra-EU Jurisdictional Objection (June 26, 2019).
[8] ANTONELLI, *supra* note 5, at 331.

common, arbitrators will increasingly have the difficult task of upholding "the legitimacy of the ISDS system while not hampering legitimate domestic action to" enact environmental and climate protections.[9]

This module uses the Sabin Center's definition and focuses on cases brought before traditional judicial bodies such as European regional courts and domestic constitutional and administrative courts. However, judges should be aware that these categories only represent a portion of the climate-related disputes arising in legal proceedings. For example, many of the national reports on climate change submitted to the European Union Forum of Judges for the Environment (EUFJE) included cases that had significant climate implications without requiring direct judicial resolutions of questions concerning climate science or policy (and therefore, would not meet the Sabin Center definition).[10] Examples of these cases include disputes surrounding waste disposal in Spain, timber policy in Estonia, and air pollution in Poland.[11] In addition to the rise of "strategic climate litigation" (where litigants are pursuing general advances in a state's climate policy), judges are also more likely to encounter these types of cases that are only tangentially related to climate policy in the future.

That is because, as numerous studies have highlighted, the effects of climate change are leading to significant increases in other types of judicial proceedings, both in Europe and globally. For instance, the rise in global temperatures is projected to escalate the occurrence of violent crime,[12] property litigation following natural disasters,[13] and immigration cases due to the influx of climate refugees.[14] These forms of litigation are rarely considered "climate litigation," but they will increasingly stem from the impacts of a warming world. This underscores the evolving nature of climate-related legal issues and the need for judges to be prepared for these changes.

B. Types of Climate Litigation (Mitigation, Adaptation, and Damages)

Climate change litigation may raise issues related to the reduction of greenhouse gas (GHG) emissions or other drivers of climate change ("mitigation"), actions in response to climate change's impacts ("adaptation"), or compensation for damages climate change has already caused ("damages"). These categories, however, are fluid.

Mitigation cases concern efforts to reduce GHG emissions. This type of litigation often includes claims to stop or slow fossil fuel-based projects. For example, lawsuits concerning environmental reviews or permitting challenges to coal plants, natural gas development, oil and natural gas pipelines, and other associated infrastructure are generally classified as mitigation cases. Also in this category are cases concerning carbon sequestration, which includes both efforts to retain

[9] ANTONELLI, *supra* note 5, at 340.
[10] JOANA SETZER ET AL., CLIMATE LITIGATION IN EUROPE: A SUMMARY REPORT FOR THE EUROPEAN UNION FORUM OF JUDGES FOR THE ENVIRONMENT 5 (2022), https://www.lse.ac.uk/granthaminstitute/publication/climate-litigation-in-europe-a-summary-report-for-the-european-union-forum-of-judges-for-the-environment/.
[11] *Id.* at 10.
[12] RYAN HARP & KRISTOPHER KARNAUSKAS, GLOBAL WARMING TO INCREASE VIOLENT CRIME IN THE UNITED STATES (2020).
[13] Allison Schoenthal, *Insight: Climate Change Could Bring Lawsuit Whirlwind to Mortgage Industry*, BLOOMBERG L. (Apr. 21, 2020), https://news.bloomberglaw.com/environment-and-energy/insight-climate-change-could-bring-lawsuit-whirlwind-to-mortgage-industry.
[14] John Podesta, *The Climate Crisis, Migration, and Refugees*, BROOKINGS INSTITUTE (July 25, 2019) https://www.brookings.edu/articles/the-climate-crisis-migration-and-refugees/.

the capacity to absorb carbon dioxide (CO_2) in places such as forests and wetlands and negative emissions technologies such as carbon capture and storage. Mitigation cases also include disputes related to the transition to renewable energy sources. These cases often center on the siting, environmental impact assessments, and approvals of wind, solar, geothermal, and transmission lines.

Adaptation cases may involve suits to force government adaptation actions, claims of inadequate consideration of climate adaptation in long-term planning, and claims seeking funding for adaptation.[15] In the United States, adaptation suits often focus on a company or government agency's failure to adapt new infrastructure projects to projected climate impacts like warmer temperatures and sea-level rise.[16] In Europe, however, plaintiffs have yet to employ this strategy on a broad scale.[17] European adaptation cases more commonly focus on public companies' failure to account for climate change in long-term strategic planning.

For example, in *ClientEarth v. Enea*, an environmental nonprofit and shareholder in the Polish energy utility Enea SA sued the company seeking to block the construction of a new coal-fired power plant. In that case, the plaintiffs argued the company's failure to adapt its strategic planning to account for climate-related financial risks—such as rising carbon prices, competition from cheaper renewables, and the impact of EU energy reforms on state subsidies for coal power—would harm the interests of the company's shareholders.[18]

Damages cases may concern the cost of any climate impact on public health or property. The damages at issue in these cases often result from climate impacts such as heat waves, sea-level rise, drought, wildfires, and extreme storms. These cases require judges to determine who, if anyone, bears responsibility for the cost of the damage. One prominent example of a damages case making its way through a European court now is *Luciano Lliuya v. RWE AG,* where a Peruvian farmer whose home is threatened by a melting glacier is seeking about $20,000 in damages from Germany's largest electricity producer, RWE.[19] Judges will likely face more cases that raise these questions of attribution (i.e., disputes concerning the extent to which specific damages from weather events and natural disasters can be attributed to climate change) as climate scientists work to be more precise in

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[15] *See* Jacqueline Peel & Hari M. Osofsky, *Sue to Adapt?*, 99 MINN. L. REV. 2177, 2184 (2015).

[16] *See, e.g.*, Conservation L. Found. v. ExxonMobil Corp., 578 F. Supp. 3d 119 (D. Mass. 2021); Conservation L. Found. v. Shell Oil Prods. US, C.A. No. 17-396 WES, 2020 U.S. Dist. LEXIS 177302 (D.R.I. 2020); Conservation L. Found. v. Gulf Oil Ltd. P'ship, 3:21-CV-00932 (SVN), 2023 U.S. Dist. LEXIS 108579 (D. Conn. 2023); Conservation L. Found. v. Shell Oil Co., 628 F. Supp. 3d 416 (D. Conn. 2022).

[17] SETZER ET AL., *supra* note 10, at 14.

[18] In July 2019, a Polish Regional Court ruled in the plaintiff's favor and the project was abandoned. Sabin Ctr. for Climate Change L., *ClientEarth v. Enea*, CLIMATE CHANGE LITIG. DATABASES, https://climatecasechart.com/non-us-case/clientearth-v-enea/ ("[C]onstruction of the [coal] power plant harmed the economic interests of the company as a result of climate-related financial risks."); McGaughey v. Univ. Superannuation Scheme Ltd. [2023] EWCA Civ 873, [29]-[32] (appeal taken from Eng.); *see also Lawsuits Aimed at Greenhouse-Gas Emissions Are a Growing Trend*, THE ECONOMIST (Apr. 23, 2022), https://www.economist.com/international/2022/04/23/lawsuits-aimed-at-greenhouse-gas-emissions-are-a-growing-trend.

[19] Sabin Ctr. for Climate Change L., *Luciano Lliuya v. RWE AG*, CLIMATE CHANGE LITIG. DATABASES, https://climatecasechart.com/non-us-case/lliuya-v-rwe-ag/.

attributing damages to specific weather and climate events (see Detection and Attribution module and supplemental paper).[20]

While all these categories of cases might be considered "climate litigation," the degree to which climate science will be put before the court will inevitably vary from case to case. However, with sufficient knowledge of climate science fundamentals, judges will have the necessary context to reach informed decisions based on the evidence presented to them in these cases.

C. European Climate Litigation by the Numbers

While the first European climate cases were filed in the 1990s, climate litigation on the continent began in earnest in the mid-2000s and has been on the rise since. From a handful of cases filed in 2005 (mostly pertaining to the then-recently implemented European Union Emissions Trading System, Directive 2003/87/EC), European climate litigation surged to nearly 50 cases filed in 2021.[21] To date, there have been 285 climate cases filed across Europe over the last 30 years (see Figure 1).[22] While that may not seem like a significant number, some of the cases have had an outsized impact—and many have drawn attention and interest from media around the world.

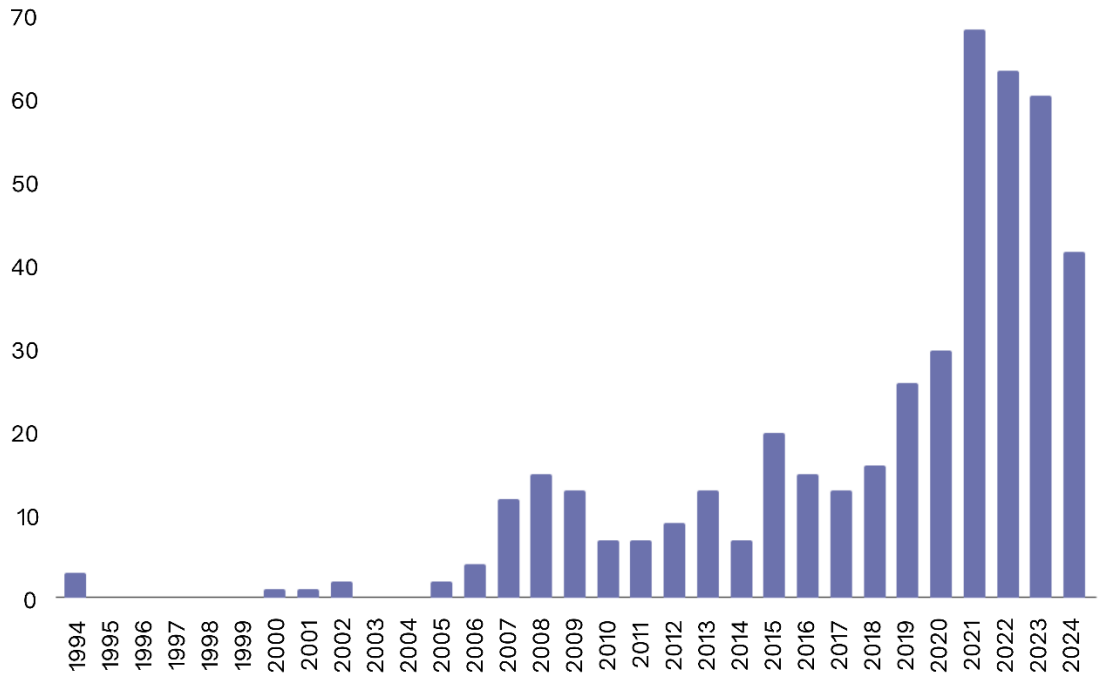

Figure 1. Number of cases filed in European jurisdictions. Source: Sabin Center for Climate Change Law, Global Climate Change Litigation Database.

[20] Rupert F. Stuart-Smith et al., *Filling the Evidentiary Gap in Climate Litigation*, 11 NATURE CLIMATE CHANGE 651, 651 (2021). Matt McGrath, *Climate Change: Courts Set for Rise in Compensation Cases*, BBC (June 28, 2021), https://www.bbc.com/news/science-environment-57641167.

[21] SETZER ET AL., *supra* note 10.

[22] *Id.* (citing numbers from the Sabin Center climate change litigation database and the Climate Change Laws of the World database).

As seen in Figure 1, climate litigation is becoming increasingly common across Europe. However, there are still significant disparities in the frequency of climate litigation from country to country, with western European nations experiencing the bulk of climate litigation. In fact, the United Kingdom (U.K.), France, Germany, and Spain "collectively account for more than half of the total number of cases" and regularly see dozens of new cases filed each year.[23] Comparatively, Eastern Europe and the Baltic nations have seen the least climate litigation. Nonetheless, climate cases have been filed in at least 20 European countries over the last 30 years (see Figure 2).

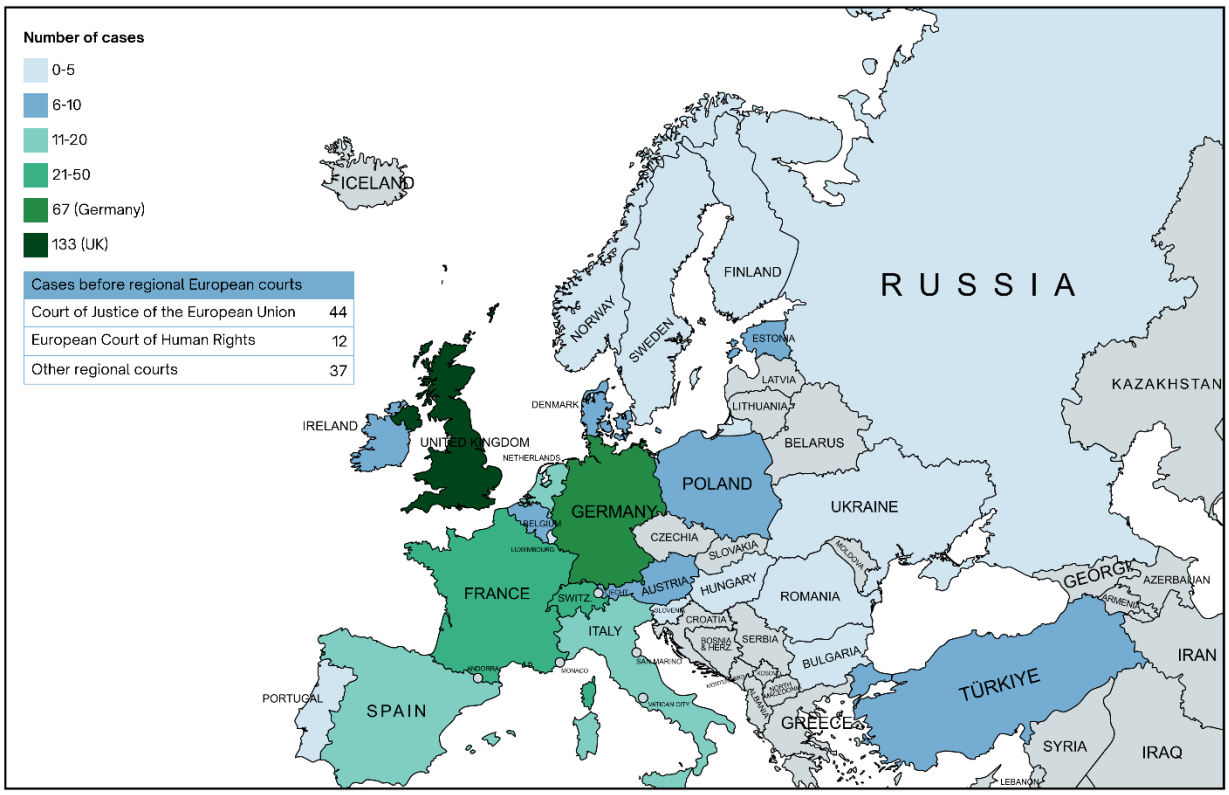

Figure 2. Map of cases filed in European jurisdictions. Source: Sabin Center for Climate Change Law, Global Climate Change Litigation Database.

II. Legal Landscape of European Climate Litigation

A. Trends in European Climate Litigation

Various scholars and the Grantham Institute's summary of European climate litigation offer a "three waves" metaphor to describe the progression of climate litigation over time.[24] These three waves are:

[23] *Id.* at 6.
[24] *Id.* at 9. *See also* Peel & Osofsky, *supra* note 4; MARYAM GOLNARAGHI ET AL., CLIMATE CHANGE LITIGATION: INSIGHTS INTO THE EVOLVING GLOBAL LANDSCAPE (April 2021), https://www.genevaassociation.org/sites/default/files/climate_litigation_04-07-2021.pdf.

a. **Administrative law challenges to individual policies or projects**: Between the 1980s and the mid-2000s in the United States (and later in Europe), the first wave of climate litigation primarily consisted of administrative law challenges to individual government decisions. Common features of this litigation include challenges to individual policy decisions or projects that would increase GHG emissions or that failed to adequately consider their impact on the climate.[25] For example, in *Taische v. Irish Planning Board* (2014), an environmental nongovernmental organization (NGO) challenged the Irish Planning Board's extension of a biomass power plant's operation from 2015 to 2023.[26]

b. **Challenges to the implementation of climate change mitigation strategies:** From the mid-2000s and early 2010s, the second wave of climate litigation added legal challenges to new climate change legislation and "gap filling" litigation intended to force action in policy areas left unaddressed. Climate suits against corporations are also considered to be in this "second wave."[27] For example, ExxonMobil's challenge to Germany's allocation of GHG emission allowances to one of its natural gas processing installations, in *ExxonMobil v. Germany* (2017), is considered "second wave."[28]

c. **Strategic, rights-based climate litigation**: Appearing around the time of the 2015 Paris Agreement, the "third wave" refers to suits that typically use constitutional and human rights law to argue governments have positive obligations to take ambitious climate action.[29] *Urgenda* (2020), *Neubauer* (2020), and *Verein KlimaSeniorinnen Schweiz* (2024) are all in this wave.

Rather than supplanting each other, each "wave" introduces a new thread, resulting in a gradual expansion over time. While headline "third wave" cases like *Verein KlimaSeniorinnen Schweiz* are extensively covered and garner significant media attention, more traditional "first wave" cases continue to appear on European court dockets. For example, in 2023, a coalition of environmental NGOs initiated a lawsuit against a liquified natural gas (LNG) terminal in Greece, which would be fairly characterized as part of the "first wave" of climate litigation.[30]

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[25] SETZER ET AL., *supra* note 10, at 9.
[26] Sabin Ctr. for Climate Change L., *An Taisce v. Irish Planning Board*, CLIMATE CHANGE LITIG. DATABASES, https://climatecasechart.com/non-us-case/an-taisce-v-irish-planning-board/.
[27] SETZER ET AL., *supra* note 10, at 9.
[28] Sabin Ctr. for Climate Change L., *ExxonMobil v. Germany*, CLIMATE CHANGE LITIG. DATABASES, https://climatecasechart.com/non-us-case/exxonmobil-v-germany/ (the European Court of Justice ultimately ruled in Exxon's favor, ruling that even if only a small portion of the electricity the natural gas processing plant generated supplied the public electricity network, the facility was still an "electricity generator" and entitled to emission allowances).
[29] SETZER ET AL., *supra* note 10, at 9.
[30] Derek Gatopoulos & Costas Kantouris, *Nature Groups Go to Court in Greece Over a Strategic Gas Terminal Backed by the European Union*, ASSOCIATED PRESS (Dec. 20, 2023), https://apnews.com/article/greece-natural-gas-environmental-protest-be04c09ff03885f02ec92584c45abac5.

As the Grantham Institute points out, the "three waves" analogy has also been observed in domestic contexts, making it useful to understand how litigation may progress in national jurisdictions with less history of climate litigation, such as countries in eastern Europe.[31]

B. Parties

Most European climate cases retain a traditional model of civil society groups and members of the public pressing claims against their domestic governments. In fact, according to the Grantham Institute, around 75% of European climate cases have been filed against government actors.[32] These claims most commonly challenge a government action that exacerbates climate change or challenge the government to take more aggressive climate action.

Although they remain a small portion of overall climate cases, climate litigation against private parties is increasing. The Grantham Institute reports that 16% of climate cases filed in Europe were against private parties but that 40% of those cases were filed in just four years from 2018-2022.[33] There are multiple drivers of this increase in climate cases against private companies, including the success of international human rights-based claims against private actors (see Section II.d) and the proliferation of "duty of vigilance" laws (see Section III.e).

C. Jurisdiction

1. Regional European Courts

Climate litigation has frequently been brought in European regional courts, namely the Court of Justice of the European Union (CJEU) and the European Court of Human Rights (ECtHR). The Grantham Institute has noted, however, that the "two judicial entities [are] being used for different purposes by litigants."[34]

The CJEU has a longer history of climate litigation, hearing a total of 60 climate cases since 2005. As the chief judicial authority of European Union (EU) law, most of CJEU's climate caseload centers around the EU's climate and energy statutes. In fact, more than half (thirty-two) of the CJEU's climate cases concern the EU's Emission Trading System (Directive 2003/87/EC). Other examples of climate cases heard in the CJEU include litigation concerning the EU's Renewable Energy Directive (specifically as it relates to biomass energy) and the EU's Land Use, Land Use Change, and Forestry (LULUCF) Regulation.[35] While CJEU jurisdiction extends to human rights cases that invoke the implementation of EU law, such as the Charter of Fundamental Rights of the EU,[36]

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[31] SETZER ET AL., *supra* note 10, at 10.
[32] *Id.* at 7.
[33] *Id.*
[34] *Id.*
[35] *Id.* at 25.
[36] European Network of National Human Rights Institutions (ENNHRI), *Implementation of the EU Charter of Fundamental Rights: Activities of National Human Rights Institutions*, ENNHRI (October 2019), https://ennhri.org/wp-content/uploads/2019/11/Implementation-of-the-EU-Charter-of-Fundamental-Rights-Activities-of-NHRIs.pdf.

human rights cases cannot be brought against a Member State or individual and thus are not as common.[37]

Box 2. EU Emission Trading System

The EU's Emission Trading System (ETS) is a cap-and-trade-style emissions reduction policy for several of Europe's highest polluting economic sectors. First launched in 2005, the EU ETS has operated in four different trading phases. Each phase covers new sectors of the economy and mandates a lower cap on overall emissions. The fourth and current trading phase, set to last until 2030, covers the electricity, industrial, aviation, buildings, and transportation sectors. This phase of ETS aims to reduce emissions from these sectors by 62% by 2030 compared to 2005 levels.

The ETS has frequently been the subject of litigation in the CJEU. Rather than strategic litigation seeking broad changes in climate policy, most ETS cases raise specific implementation questions.[38] For example, in 2017, ExxonMobil sued the State of Germany to challenge whether a natural gas processing installation should be considered an electricity-generating facility and subject to the ETS.[39] The same year, INEOS, the British chemical conglomerate, sued the State of Germany to challenge the State's denial of free allowances to one of its petrochemical plants.[40] Both cases began in the Berlin Administrative Court before being deferred to the CJEU.

The EU Parliament only finalized the current trading phase of the ETS in 2023, which includes new sectors and more ambitious targets.[41] As countries continue implementing the fourth trading phase, more ETS litigation could soon appear in the CJEU.

In contrast, as the primary interpreter of the European Convention on Human Rights, the ECtHR hears cases concerning the human rights record of European states.[42] The first climate case was brought to the ECtHR in 2020, with 12 more cases filed since then.[43] These climate cases usually rely on either Article 2 or 8 of the Convention, which protect the right to life and the right to private and family life, respectively.[44]

The ECtHR issued its first climate rulings in April 2024, when it ruled in three separate climate cases. In one of those cases, *Verein KlimaSeniorinnen Schweiz and Others v. Switzerland* (profiled in more depth below), the Court found that the European Convention on Human Rights creates a positive obligation on European governments to protect their citizens from the impacts of climate change.[45]

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[37] European Commission, *EU Charter of Fundamental Rights: When Does It Apply and Where to Go in Case of Violation* (May 2017), https://commission.europa.eu/system/files/2017-05/charter-application_en.pdf.
[38] SETZER ET AL., *supra* note 10, at 23 ("Most of the EU ETS cases are non-strategic in that they do not pursue a broader legal and policy change.").
[39] *ExxonMobil v. Germany*, *supra* note 28.
[40] Sabin Ctr. for Climate Change L., *INEOS Köln GmbH v Republic of Germany*, CLIMATE CHANGE LITIG. DATABASES, https://climatecasechart.com/non-us-case/ineos-koln-gmbh-v-republic-of-germany-2/.
[41] *What Is the EU ETS?*, EUR. COMM'N, https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/what-eu-ets_en (last visited Mar. 7, 2025).
[42] Veronica de la Rosa Jaimes, *Climate Change and Human Rights Litigation in Europe and the Americas*, 5 SEATTLE J. ENV'T L. 165, 174 (2015).
[43] Sabin Ctr. for Climate Change L., *European Court of Human Rights*, CLIMATE CHANGE LITIG. DATABASES, https://climatecasechart.com/non-us-jurisdiction/european-court-of-human-rights/.
[44] de la Rosa Jaimes, *supra* note 42.
[45] *Grand Chamber Rulings in the Climate Change Cases*, EUR. CT. OF HUM. RTS., https://www.echr.coe.int/w/grand-chamber-rulings-in-the-climate-change-cases (Apr. 9, 2024).

Some observers expect this positive outcome for climate plaintiffs to prompt an increase in human rights-based climate cases across Europe.[46]

2. Domestic Courts

The most common fora for climate litigation in Europe are countries' domestic courts. Every jurisdiction within the EU has its own court system, and most European countries divide their judiciary into civil, criminal, constitutional, and administrative courts.[47]

In their submissions to the EUFJE, most countries reported that their administrative courts see the bulk of climate cases.[48] This likely reflects the fact that most climate cases concern disputes over the exercise of state power. Within these administrative courts, some countries have even more specialized courts for hearing environmental disputes.[49] For example, the U.K.'s submission to the EUFJE reported that most climate cases in the country have concerned decisionmaking on major infrastructure and, subsequently, have been tried primarily in the Planning Court in England and Wales.[50] Similarly, Sweden's submission noted that most of its climate litigation has been in the Land and Environmental Court, which hears challenges to natural resource and energy policy.[51] Fourteen additional countries (Austria, Belgium, Bulgaria, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Malta, Netherlands, and Spain) have similarly specialized environmental administrative courts or tribunals.[52] Additionally, even administrative courts without such specialization may still employ "expert judges" for environmental matters. For example, though Finland's Supreme Administrative Court is not specialized, the Court has permanent access to technical judges that can be appointed on a case-by-case basis (for more examples, see Section III).[53]

Still, other countries have noted the emergence of climate litigation in their civil and constitutional courts, representing the expanding array of strategies employed by climate litigants. For example, in Germany, where "national climate protection targets have to be pursued both on the federal and

[46] Gloria Dickie & Emma Farge, *Climate Inaction Violates Human Rights. What ECHR's Ruling Means for Future Litigation?*, REUTERS (Apr. 10, 2024), https://www.reuters.com/sustainability/society-equity/how-three-european-human-rights-cases-could-shape-climate-litigation-2024-04-08/.
[47] For an overview of the European legal system's access to justice and to search on a country-by-country basis, the European e-Justice Portal provides information for individuals making claims, for legal professionals, and for the general public. *European e-Justice*, https://e-justice.europa.eu/home?action=home (last visited Mar. 7, 2025).
[48] SETZER ET AL., *supra* note 10, at 26.
[49] *Planning Court*, COURTS AND TRIBUNALS JUDICIARY, https://www.judiciary.uk/courts-and-tribunals/high-court/administrative-court/planning-court/ (last visited June 26, 2024).
[50] *EUFJE Annual Conference 2022 Questionnaire—UK Response*, EUR. UNION F. OF JUDGES FOR THE ENV'T, https://www.eufje.org/images/docConf/par2022/Questionnaire_2022_UK.pdf (2022).
[51] *EUFJE Annual Conference 2022 Questionnaire—Sweden Response*, EUR. UNION F. OF JUDGES FOR THE ENV'T, https://www.eufje.org/images/docConf/par2022/Questionnaire_2022_Sweden.pdf (2022).
[52] Luc Lavrysen, *Environmental Law in the Courts of Europe: A Rough Sketch*, *in* ENVIRONMENTAL LAW BEFORE THE COURTS: A US-EU NARRATIVE, 201, 211 (Giovanni Antonelli et al. eds., 2023). *See also* United Nations Environment Programme, *Environmental Courts and Tribunal—2021: A Guide for Policy Makers*, https://wedocs.unep.org/20.500.11822/40309 (last visited Feb. 11, 2025).
[53] Sinikka Kangasmaa & Tiina Paloniitty, *Securing Scientific Understanding: Expert Judges in Finnish Environmental Administrative Judicial Review*, 27 EUROPEAN ENERGY & ENV'T L. REV. 125 (2018).

state level," the Federal Constitutional Court heard 11 climate cases alleging that some states' failure to enact ambitious climate laws violated their citizen's constitutional rights.[54]

D. Claims and Legal Issues

This section briefly examines some of the common issues that have arisen in climate litigation and offers examples of how various European courts have ruled on such questions.

1. Justiciability and Procedural Questions

Many national reports submitted to the EUFJE note that justiciability questions, and standing specifically, are among the main issues that arise in climate litigation. While private companies with direct financial stakes in the outcome of litigation concerning the energy or transportation industries typically have less trouble meeting standing requirements, the standing of NGOs and individuals seeking climate action is often challenged.[55]

Approaches to justiciability questions vary. A minority of countries have recognized explicitly lenient standing requirements in administrative proceedings concerning environmental disputes. For example, administrative courts in Greece have determined that the requisite "legal interest" to challenge state administrative acts is broader in environmental disputes than in other matters.[56] Other countries' standing requirements for judicial review are also lenient. For example, U.K. courts employ "the sufficient interest test" to determine whether plaintiffs may seek judicial review of a government action. Most NGOs and affected residents pass this test, as only those potential litigants with no interest whatsoever fail to show a sufficient interest.[57]

However, in other countries, standing is more narrowly defined or difficult to establish. In civil law jurisdictions (which includes all of Europe, except the U.K., Ireland, and Cyprus), the absence of private causes of action in key climate or environmental protection laws can create significant barriers to standing for individuals. For example, in Germany, private individuals are typically unable

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[54] *EUFJE Annual Conference 2022 Questionnaire—Germany Response*, EUR. UNION F. OF JUDGES FOR THE ENV'T, https://www.eufje.org/images/docConf/par2022/Questionnaire_2022_Germany.pdf (2022).

[55] SETZER ET AL., *supra* note 10, at 17 ("Although, while the Grantham Report concludes that 'issues of standing have tended to affect NGOS and individuals most significantly' it also notes that in some instances 'corporations bringing non-climate-aligned cases seeking to challenge the domestic implementation of EU regulations have encountered significant difficulties in establishing standing.'").

[56] *EUFJE Annual Conference 2022 Questionnaire—Greece Response*, EUR. UNION F. OF JUDGES FOR THE ENV'T, https://www.eufje.org/images/docConf/par2022/Questionnaire_2022_Greece.pdf (2022) (for example, five environmental organizations submitted an application for the annulment of the approval of a new LNG terminal). *Environmental Groups Urge Greek Supreme Court to Cancel LNG Environmental Permit*, WORLD WILDLIFE FUND (Dec. 20, 2023), https://www.wwf.gr/en/?12572291/Environmental-groups-urge-Greek-Supreme-Court-to-cancel-LNG-environmental-permit.

[57] Alexander Fawke & Emma Kate Cooney, *Standing in Judicial Review Proceedings: No "Carte Blanche" for Public Interest Groups*, LINKLATERS, https://www.linklaters.com/en/knowledge/publications/alerts-newsletters-and-guides/2022/march/22/standing-in-judicial-review-proceedings-no-carte-blanche-for-public-interest-groups (Mar. 24, 2022) (noting that in 2022, the U.K. High Court of Justice denied judicial review to a general public interest organization, prompting some observers to conclude "standing is likely to go from a point rarely argued or debated as part of judicial review proceedings to one which may frequently take centre-stage in public interest claims.").

to establish standing because "neither the Federal Climate Change Act nor climate protection laws in the federal states contain any subjective rights or actionable legal positions."[58]

Despite this hurdle for individuals, NGOs usually fare better, at least in part due to European nations' efforts to implement the United Nations Economic Commission for Europe (UNECE) Convention on Access to Information, Public Participation in Decisionmaking, and Access to Justice in Environmental Matters (the Aarhus Convention)—the 1998 international treaty that recognizes essential rights related to environmental governance. This treaty requires signatory nations to ensure access to justice for challenges to breaches of that country's environmental laws.[59] In implementing this treaty, several European nations, including Germany, have enacted laws that grant environmental NGOs standing to sue.[60] In others, such as Ukraine and Albania, the courts have cited the Aarhus Convention in finding standing for environmental organizations.[61] Regionally, the CJEU has stated that to have standing to challenge an EU directive, "persons concerned" must rely on the required rules within such directive.[62]

2. Statutory, Administrative, and Regulatory Claims

As noted above, most climate litigation in Europe's regional courts—specifically the CJEU—has focused on EU legislation. More than half (thirty-two) of the CJEU's climate cases concern the EU's Emission Trading System (Directive 2003/87/EC). Other laws, such as the EU's Renewable Energy Directive and the EU's Land Use, Land Use Change, and Forestry Regulation, have also frequently been the basis for claims.

Despite growing trends toward human rights and constitutional claims, administrative, statutory, and regulatory claims still predominate in domestic climate litigation.[63] The quantity and substance of these claims vary significantly across European jurisdictions. However, the Grantham Institute notes a general trend of traditional administrative law challenges continuing to exist in parallel with more recent litigation trends like constitutional and human rights claims.[64]

The proliferation of domestic climate laws and policies across Europe increases states' climate obligations and may provide more potential administrative law and statutory challenges. Members of the EU have reported more than 1,500 national policies (both planned and adopted) for reducing GHG emissions and achieving climate change mitigation targets to the European Environment Agency (which tracks EU members' progress toward meeting international climate commitments).[65]

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[58] SETZER ET AL., *supra* note 10, at 17.
[59] *Access to Justice*, UNITED NATIONS ECON. COMM'N FOR EUR., https://unece.org/environment-policy/public-participation/access-to-justice (last visited Mar. 7, 2025).
[60] *Legal Background to the Environmental Appeals Act*, UMWELTBUNDESAMT, https://www.umweltbundesamt.de/en/legal-background-to-the-environmental-appeals-act (June 15, 2017).
[61] *EUFJE Annual Conference 2022 Questionnaire—Ukraine Response*, EUR. UNION F. OF JUDGES FOR THE ENV'T, https://www.eufje.org/images/docConf/par2022/Questionnaire_2022_Ukraine.pdf (2022); *EUFJE Annual Conference 2022 Questionnaire—Albania Response*, EUR. UNION F. OF JUDGES FOR THE ENV'T, https://www.eufje.org/images/docConf/par2022/Questionnaire_2022_Albania.pdf (2022).
[62] Case C-237/07, Dieter Janecek v. Freistaat Bayern, ECLI:EU:C:2008:447, ¶ 22 (July 25, 2008).
[63] SETZER ET AL., *supra* note 10, at 21.
[64] SETZER ET AL., *supra* note 10, at 16.
[65] *Tracking Climate Policies in European Union Countries*, EUR. ENV'T AGENCY, https://www.eea.europa.eu/publications/tracking-climate-policies-in-european (Mar. 25, 2021).

Not all of these laws create additional causes of action for climate litigants to challenge government actions.[66] However, considering that Article 9(3) of the Aarhus Convention requires European nations to broadly ensure their people have access to judicial remedies to challenge the legality of a government environmental policy, the continued proliferation of European climate policies would seem to support future administrative and regulatory climate challenges.

3. Common Law and Tort Law

Plaintiffs in a number of cases in the United States have brought common-law tort actions, such as public nuisance claims, against fossil fuel companies, although few of these cases have reached the merits.[67] The few common-law jurisdictions in Europe (only the U.K., Ireland, and Cyprus) have yet to see similar cases. For example, none of the 130 climate cases from the U.K. in the Sabin Center's Global database allege nuisance claims against a fossil fuel company.[68]

Nonetheless, tort actions, especially against fossil fuel companies, have been increasing in continental Europe's civil law jurisdictions. These civil law jurisdictions, where torts are established by statute rather than by common law, have produced several prominent cases against private corporations in recent years.

For example, in *Milieudefensie et al. v. Royal Dutch Shell plc.*, a Dutch environmental NGO alleged the formerly Dutch-based company violated its duty of care to Dutch citizens established by Article 6:162 of the Dutch Civil Code by issuing misleading statements on climate change and failing to reduce its carbon emissions adequately.[69] Milieudefensie argued that this general social duty of care must be informed by the European Convention on Human Rights (ECHR), specifically the Article 2 protection of the right to life and the Article 8 protection of the right to privacy and family life (See Section 2.c.iv), and that these standards create a duty for companies like Shell to "contribute to the prevention of dangerous climate change through the corporate policy it determines" for the company. The Hague District Court agreed with the plaintiffs and ordered Shell to reduce its emissions by 45% by 2030 compared to 1990 levels.[70]

Shell appealed, and in November 2024, the Dutch Court of Appeal ruled that it could not impose specific obligations on Shell to reduce its emissions by any percentage, let alone by 45%, due to what the court viewed as conflicting reports from both parties. However, the appellate court affirmed Shell's overall obligation to limit carbon emissions on the basis of its social duty of care and obligations from global human rights instruments. The court further reasoned that because "fossil fuel consumption is largely responsible for creating the climate problem," Shell, as a "major oil

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[66] SETZER ET AL., *supra* note 10, at 17.
[67] Gatanjali Ganguly et al., *If at First You Don't Succeed: Suing Corporations for Climate Change*, 38 OXFORD J. LEGAL STUD. 841, 848 (2018).
[68] Sabin Ctr. for Climate Change L., *United Kingdom Archives*, CLIMATE CHANGE LITIG. DATABASES, https://climatecasechart.com/non-us-jurisdiction/united-kingdom/.
[69] *Milieudefensie*, C/09/571932 m.nt; and Rechtbank Den Haag, 5 apr 2019, C/09/571932 m.nt. (Milieudefensie et al./Royal Dutch Shell, PLC) (Neth.).
[70] Rechtbank Den Haag, 26 mei 2021, C/09/571932 m.nt., 32 (Milieudefensie et al./Royal Dutch Shell, PLC) (Neth.). To access the decision in Dutch and English, see Sabin Ctr. for Climate Change L., *Milieudefensie et al. v. Royal Dutch Shell plc.*, CLIMATE CHANGE LITIG. DATABASES, https://climatecasechart.com/non-us-case/milieudefensie-et-al-v-royal-dutch-shell-plc/.

company," has a "special responsibility" to contribute to global efforts to abate climate change.[71] The decision may, therefore, spur subsequent suits in the Netherlands and beyond related to this responsibility.

Thus, *Milieudefensie* is a significant decision in European torts-based climate litigation, and although it was later reversed, many legal scholars still expect it to catalyze a new wave of litigation against companies with significant climate footprints.[72] In the last three to four years, that prediction has begun to materialize.[73] In 2021, for example, environmental NGOs in Germany initiated a similar tort-based action against Mercedes-Benz.[74]

Litigation against private companies has also resulted from European countries modifying their civil codes to broaden the duty of care companies assume with respect to climate change. In particular, "duty of vigilance" laws have been enacted in France, Germany, the U.K., the Netherlands, and Norway. These laws increase oversight of corporate climate practices by requiring large companies to consider environmental risks and human rights in their long-term strategies. They also typically require companies to monitor their supply chains for compliance with environmental and human rights laws. In France alone, there were at least six duty of vigilance cases filed against private companies in 2023,[75] including pending climate litigation against the major French financial institution BNP Paribas (see Box 2).[76] Many observers expect the proliferation of duty of vigilance statutes (the EU is considering a similar statute), and their associated case law to further increase climate cases against European companies.[77]

Box 3. Duty of Vigilance and Climate Litigation—*Notre Affaire à Tous Les Amis de la Terre, and Oxfam France v. BNP Paribas*

Notre Affaire à Tous Les Amis de la Terre and Oxfam France v. BNP Paribas is a pending climate lawsuit in France based on the French duty of vigilance statute.[78] The French environmental NGOs bringing the suit allege the corporate "vigilance plan" BNP submitted to comply with the statute fails to adequately consider and plan for climate change. The plaintiffs specifically claim that BNP's plan is insufficient because it does not identify the climate risks deriving from BNP's activities and does not include an enforceable plan for the decarbonization of

[71] Case 200.302.332/01, Shell plc. et al. v. Milieudefensie et al., ECLI:NL:RBDHA:2021:5339, ¶¶ 7.26, 7.79 (Nov. 12, 2024) (Neth.). As of publication, the decision has not been appealed to the Dutch Supreme Court.
[72] *See* Maria Antonia Tigre & Marlies Hesselman, *Milieudefensie v Shell: 3 Takeaways and Challenges on the Appeal's Court Decision*, SABIN CTR. FOR CLIMATE CHANGE L.: CLIMATE L. BLOG (Dec. 12, 2024), https://blogs.law.columbia.edu/climatechange/2024/12/12/milieudefensie-v-shell-3-takeaways-and-challenges-on-the-appeals-court-decision/?mc_cid=d727beb56e&mc_eid=8cd0d23670; *see also* Wubeshet Tiruneh, *Holding the Parent Company Liable for Human Rights Abuses Committed Abroad: The Case of the Four Nigerian Farmers and* Milieudefensie v. Shell, EJIL: TALK! (Feb. 19, 2021), https://www.ejiltalk.org/holding-the-parent-company-liable-for-human-rights-abuses-committed-abroad-the-case-of-the-four-nigerian-farmers-and-milieudefensie-v-shell/; JOANA SETZER & CATHERINE HIGHAM, GLOBAL TRENDS IN CLIMATE CHANGE LITIGATION: 2022 SNAPSHOT 4 (2022).
[73] SETZER ET AL., *supra* note 10, at 4.
[74] Sabin Ctr. for Climate Change L., *Deutsche Umwelthilfe (DUH) v. Mercedes-Benz AG*, CLIMATE CHANGE LITIG. DATABASES, https://climatecasechart.com/non-us-case/deutsche-umwelthilfe-duh-v-mercedes-benz-ag/.
[75] Anne Bagamery, *In Europe, Climate Litigation Grows Teeth*, LAW.COM (Jan. 15, 2023), https://www.law.com/international-edition/2023/01/15/in-europe-climate-litigation-grows-teeth/.
[76] Sabin Ctr. for Climate Change L., *Notre Affaire à Tous Les Amis de la Terre, and Oxfam France v. BNP Paribas*, CLIMATE CHANGE LITIG. DATABASES, https://climatecasechart.com/non-us-case/notre-affaire-a-tous-les-amis-de-la-terre-and-oxfam-france-v-bnp-paribas/.
[77] Bagamery, *supra* note 75.
[78] *Notre Affaire à Tous Les Amis de la Terre, and Oxfam France v. BNP Paribas*, *supra* note 76.

the company's financing and activities.[79] These shortcomings, the plaintiffs allege, represent a failure to "identify risks and prevent serious violations of human rights and fundamental freedoms, the health and safety of individuals and the environment, resulting from the activities of the company and those of the companies it controls" as required by the statute."[80]

4. Constitutional Claims

Climate litigation based on national constitutions is becoming increasingly common across Europe. These cases often are brought pursuant to an explicit constitutional provision recognizing the right to a healthy environment, or more general constitutionally recognized fundamental rights.

a) Constitutional Right to a Healthy Environment

Constitutional climate cases in Europe most often center on a constitutionally recognized right to a healthy environment. In 1976, Portugal was the first country in the world to enshrine the right to a healthy environment in its national constitution.[81] Since then, more than 100 countries worldwide, including 19 European countries, have placed the right to a healthy environment in their constitutions.[82] For an example, consider Article 112 of the Norwegian Constitution, which reads:

> Every person has a right to an environment that is conducive to health and to natural surroundings whose productivity and diversity are preserved. Natural resources should be made use of on the basis of comprehensive long-term considerations whereby this right will be safeguarded for future generations as well.[83]

Many countries' rights to a healthy environment encompass some procedural elements such as rights of access to information, judicial remedies, and participation in environmental assessment processes. The substantive aspects of the right typically include elements such as the right to clean air, safe drinking water, healthy and sustainably sourced food, adequate sanitation, and, in some cases, a safe climate.[84]

Claims have been brought pursuant to the constitutional right to a healthy environment in several European nations, but in many of these cases, the courts have rejected these attempts.[85] In 2020, for example, the Norwegian Supreme Court considered a case where environmental groups attempted

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[79] Formal Notice Articles L. 225-102-4.-I and II, and Following of the Fr. Com. Code, Notre Affaire à Tous Les Amis de la Terre, and Oxfam France v. BNP Paribas (2022).
[80] *Id.*
[81] Yann Aguila, *The Right to a Healthy Environment*, INT'L UNION FOR CONSERVATION OF NATURE (Oct. 29, 2021), https://www.iucn.org/news/world-commission-environmental-law/202110/right-a-healthy-environment; Report of the Special Rapporteur on the issue of human rights obligations relating to the enjoyment of a safe, clean, healthy and sustainable environment, A/73/188 (July 19, 2018), https://ap.ohchr.org/documents/dpage_e.aspx?si=A/73/188.
[82] Aguila, *supra* note 81; Ruby Silk, *UN Declares Right to a Healthy Environment: Can the EU Keep Up?*, META FROM THE EUR. ENV'T BUREAU (Sept. 7, 2022), https://meta.eeb.org/2022/09/07/un-declares-right-to-a-healthy-environment-can-the-eu-keep-up/; U.N. Human Rights Council, Right to a Healthy Environment: Good Practices, A/HRC/43/53 (Dec. 30, 2019), https://docs.un.org/en/A/HRC/43/53.
[83] KONGERIKET NORGES GRUNNLOV [CONSTITUTION] May 17, 1814, art. 112 (Nor.).
[84] SETZER ET AL., *supra* note 10, at 18.
[85] *Id.*

to use Article 112 to challenge new licenses for petroleum production in the Barents Sea.[86] The key issues in the case were whether Article 112 provides a basis for claims made by Norwegian citizens and whether courts may review and reverse legislative actions of the Norwegian Parliament (Storting) based on Article 112. Ultimately, the Supreme Court found that while citizens may invoke Article 112 in litigation, the Storting must have "grossly neglected its duties under Article 112" before a court can set aside a legislative enactment—a high threshold.[87] In this case, the Court unanimously found that the petroleum production licenses did not violate Article 112 of the Constitution.[88]

In their submissions to the EUFJE, Portugal and Spain expressed similar barriers to litigation based on their constitutional right to a healthy environment.[89] Both countries reported that the right rarely appears in litigation, and Spain's report even noted that the constitutional right's primary purpose is to provide "a goal to the legislative body" rather than enforce substantive environmental protection standards itself.[90]

b) Other Constitutional Claims

There has been a notable increase in constitutional litigation involving constitutional rights not explicitly related to the environment, often blending constitutional and human rights-based arguments.

The 2020 German case, *Neubauer et al. v. Germany*, is a useful example of this type of litigation. In that case, a group of German youth challenged Germany's Federal Climate Protection Act as insufficiently ambitious in violation of fundamental human rights protected by Germany's constitution (the Basic Law), chiefly the right to a future consistent with human dignity enshrined in Article 1 (1), and the fundamental right to life and physical integrity enshrined in Article 2 (2). The group argued that these fundamental rights, operating in conjunction with Article 20a of the Basic Law (mandating the state protect "the natural foundations of life and animals"), obligated the state to "ensure . . . that greenhouse gas emissions in the Federal Republic of Germany are kept as low as possible on the basis of more comprehensible forecasts and taking into account the principle of proportionality" (i.e., the principle of EU law that seeks to avoid imposing excessively burdensome regulation in relation to the objective sought).[91] In its decision, the German Federal Constitutional Court largely agreed with the plaintiffs and ordered the legislature to set clear GHG emission reduction targets from 2031 onwards.[92]

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[86] Greenpeace Nordic Ass'n v. Ministry of Petroleum and Energy, HR-2020-2472-P Høyesterett [Supreme Court] 3 (2020).
[87] *EUFJE Annual Conference 2022 Questionnaire—Norway Response*, EUR. UNION F. OF JUDGES FOR THE ENV'T, https://www.eufje.org/images/docConf/par2022/Questionnaire_2022_Norway.pdf (2022).
[88] *Id.*
[89] SETZER ET AL., *supra* note 10, at 18.
[90] *Id.*
[91] Constitutional Complaint, Neubauer et al. v. Germany, BverfG [Federal Constitutional Court] 84 (Feb. 6, 2020) (Ger.); *Principle of Proportionality*, EUR-LEX, https://eur-lex.europa.eu/EN/legal-content/glossary/principle-of-proportionality.html (last visited June 27, 2024).
[92] Sabin Ctr. for Climate Change L., *Neubauer et al. v. Germany*, CLIMATE CHANGE LITIG. DATABASES, https://climatecasechart.com/non-us-case/neubauer-et-al-v-germany/.

Given the largely successful outcomes of cases like *Neubauer* and *Urgenda* (see Section III.e) for strategic climate plaintiffs, these sorts of rights-based arguments are expected to become more common across Europe.[93]

5. International Human Rights-Based Claims

Invoking rights similar to those discussed above brought pursuant to constitutions, many plaintiffs have asserted claims pursuant to specific human rights broadly recognized in international treaties. These rights primarily include those recognized by the ECHR, of which Article 2's right to life and Article 8's right to private and family life are the most frequently invoked.[94] The positive obligations of these two rights can overlap, and European courts (namely the ECtHR) have repeatedly held each right may be implicated by some form of environmental pollution.[95] For example, consider the following ECtHR cases that implicate Articles 2 and 8[96]:

- In a landmark 1994 case, *Lopez Ostra v. Spain*, the ECtHR ruled that a failure by the State to mitigate industrial pollution may violate the right to private and family life.[97] The case considered the permitting of a wastewater treatment plant. In ruling that the Spanish authorities did not adequately consider the plant's environmental pollution, the ECtHR clarified that Article 8 may be implicated when "severe environmental pollution may affect individuals' well-being and prevent them from enjoying their homes in such a way as to affect their private and family life adversely."[98] The ECtHR confirmed that severe environmental pollution that affects individuals' well-being and prevents them from enjoying their homes may implicate Article 8 in the 1998 case *Guerra v. Italy*.[99]

- In 2004, in its first environmental case involving loss of life, *Oneryildiz v. Turkey*, the ECtHR decided that Article 2 imposes a positive obligation on states to take appropriate legislative and regulatory steps to safeguard life from environmental threats. The case considered the failure of Turkish environmental authorities to properly regulate a municipal landfill, resulting in a methane explosion. The court did not mention climate change or its impacts in the decision.

- In 2014, the ECtHR held that shipyard repair workers' exposure to asbestos in Malta, leading to some deaths, amounted to a violation of Article 2.[100]

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[93] SETZER, *supra* note 10, at 18.
[94] SETZER, *supra* note 10 (noting that a right to a healthy environment is not explicitly recognized by the ECHR).
[95] de la Rosa Jaimes, *supra* note 42.
[96] These examples are adapted from de la Rosa Jaimes, *supra* note 42 and *Protecting the Environment Using Human Rights Law*, COUNCIL OF EUR., https://www.coe.int/en/web/portal/human-rights-environment (last visited Mar. 7, 2025).
[97] de la Rosa Jaimes, *supra* note 42.
[98] Lopez Ostra v. Spain, App. No. 16798/90, ¶ 51 (Dec. 9, 1994), https://hudoc.echr.coe.int/eng?i=001-57905.
[99] Guerra and Others v. Italy, App. No. 14967/89 (Feb. 19, 1998), https://hudoc.echr.coe.int/eng?i=001-58135.
[100] Brincat and Others v. Malta, App. No. 60908/11 (July 24, 2014), https://hudoc.echr.coe.int/#{%22fulltext%22:[%22\%22CASE%20OF%20BRINCAT%20AND%20OTHERS%20v.%20MALTA\%22%22],%22documentcollectionid2%22:[%22GRANDCHAMBER%22,%22CHAMBER%22],%22itemid%22:[%22001-145790%22]}.

In total, the ECtHR has ruled on at least 300 cases related to the environment, most of which centered on either Articles 2 or 8.[101] Importantly, however, not every instance of environmental pollution results in a violation of these rights. For example, the ECtHR found no violations of Articles 2 or 8 in a case involving noise and dust pollution from a stone quarry,[102] nor in a case involving the environmental impacts of an urban development project.[103]

In its most recent cases concerning Articles 2 and 8, the ECtHR summarized the relevant standards. Namely, for a state to violate its positive obligations under Article 2's right to life, "it needs to be determined that there is a 'real and imminent' risk to life."[104] In the Article 8 context, a state violates its positive obligations to preserve the right to privacy and family life where there is "an "actual interference' with the applicant's enjoyment of his or her private or family life or home," and that interference reaches a certain level of severity which is to be determined on a case-by-case basis, taking into account the intensity and duration of its physical or mental impact.[105]

Recently, Articles 2 and 8 have served as the basis for claims challenging the lack of state activity to mitigate climate change. In April 2024, the ECtHR ruled on such claims for the first time in three cases, declaring two of them, *Careme v. France* and *Duarte Agostinho and Others v. Portugal*, inadmissible on the grounds that the plaintiffs did not have victim status under the ECHR and that the plaintiffs had not exhausted their available domestic remedies, respectively.

However, in the third case, *Verein KlimaSeniorinnen Schweiz and Others v. Switzerland*, the Court found that the ECHR encompasses a right to effective protection by the Swiss authorities from the serious adverse effects of climate change on lives, health, well-being, and quality of life (see Box 4).[106] The Court specifically found that Switzerland, by not taking sufficient action to mitigate the effects of climate change, had violated Article 8 and the respect for privacy and family life.[107] The case marked the first time the ECtHR had explicitly connected a state's climate policy with its positive obligations under the ECHR.

Box 4. *Verein KlimaSeniorinnen Schweiz and Others v. Switzerland*

In *Verein KlimaSeniorinnen Schweiz*, the ECtHR considered a complaint brought by an organized group of Swiss senior women (*Verein KlimaSeniorinnen Schweiz*, or Senior Women for Climate Protection Switzerland). The core of the group's claims was that Switzerland's climate policies were insufficient and violated their members' rights under Articles 2 and 8 of the ECHR. As evidence, the group chiefly relied on epidemiological data and scientific studies showing that climate change-induced heat waves would increasingly cause further deaths and illnesses in older women with chronic diseases, among other scientific evidence linking GHG emissions to the effects of climate change.

[101] *Protecting the Environment Using Human Rights Law*, *supra* note 96.
[102] Zammit Maempel and Others v. Malta, App. No. 2402/10, 20 (Nov. 22, 2011), https://hudoc.echr.coe.int/eng?i=001-107514.
[103] Kyrtatos v. Greece, App. No. 41666/98, ¶ 55 (May 22, 2003), https://hudoc.echr.coe.int/eng?i=001-61099.
[104] Verein KlimaSeniorinnen Schweiz and Others v. Switzerland, App. No. 53600/20, 194 (Apr. 9, 2024), https://hudoc.echr.coe.int/eng/?i=001-233206.
[105] *Id.* at 194-95.
[106] *Grand Chamber Rulings in the Climate Change Cases*, EUR. CT. OF HUM. RTS. (Apr. 9, 2024), https://www.echr.coe.int/w/grand-chamber-rulings-in-the-climate-change-cases.
[107] *Id.*

The Court noted "the particular importance of the reports prepared by the IPCC" and "the findings of the domestic courts and other competent authorities in establishing the factual circumstances of the case."[108] Based on this scientific evidence, the Court concluded that "Article 8 of the Convention requires that each Contracting State undertake measures for the substantial and progressive reduction of their respective GHG emission leaks."[109] Applying this principle to Switzerland, the Court held that the "critical lacunae in the Swiss authorities' process of putting in place the relevant domestic regulatory framework, including a failure to quantify . . . national GHG emissions limitations" amounted to a violation of Article 8.[110] Having reached this holding concerning Article 8, the Court held that "it is not necessary to examine the applicability of Article 2 of the Convention."[111]

Since the decision, Swiss voters rejected a proposal calling for more stringent emissions limitations. Following that vote, in March 2025, the Committee of Ministers of the Council of Europe, the body responsible for enforcing decisions from the ECtHR, found that Switzerland has not demonstrated it is taking actions to align with the warming limits outlined in the Paris Agreement. The Committee invited Swiss authorities to provide updated information on issues such as the methodology around the country's emissions budget in September 2025.

Finally, while primarily a feature of litigation before the ECtHR, the rights to life and rights to private and family life under the ECHR also appear in domestic litigation. The most prominent example is *Urgenda Foundation v. Kingdom of the Netherlands*, in which the Dutch Supreme Court upheld a lower court decision finding that by failing to reduce GHG emissions by at least 25%, the Dutch government had violated its duty of care under Articles 2 and 8.[112] The *Urgenda* decision, however, is relatively distinct as a case brought in a domestic court that primarily relies on the ECHR. In most other cases, arguments about a state's obligations under Articles 2 and 8 are made in conjunction with constitutional and statutory claims.[113]

III. European Courts and Scientific Evidence

This part does not provide an exhaustive analysis of scientific evidence in every European jurisdiction. Rather, it provides some examples of how European courts have treated scientific evidence in climate and environmental litigation, including some of the standards and processes employed with respect to the admission of such evidence. In addition, it addresses how countries approach educating judges on scientific developments.

[108] *Verein KlimaSeniorinnen Schweiz*, *supra* note 104, at 171.
[109] *Id.* at 204.
[110] *Id.* at 211.
[111] *Id.* at 230.
[112] Sabin Ctr. for Climate Change L., *Urgenda Foundation v. State of Netherlands*, CLIMATE CHANGE LITIG. DATABASES, https://climatecasechart.com/non-us-case/urgenda-foundation-v-kingdom-of-the-netherlands/; *see also infra* notes 186-94 and accompanying text.
[113] For example, plaintiffs in *Neubauer* added violations of Articles 2 and 8 of the ECHR to their constitutional and statutory causes of action against the German governments. *See Neubauer*, *supra* note 92 and accompanying text.

A. How Do European Courts Receive Technical and Scientific Information?

The ways European courts gather technical and scientific information vary significantly. Broadly speaking, there is a spectrum from (1) countries that primarily **rely on party-retained experts**, to (2) countries that may **employ court-appointed experts** in place of, or in addition to, party-retained experts, to (3) countries that **employ expert judges** in addition to party-retained experts and court-appointed experts.[114] While not every country falls neatly into one of these categories, they are useful in understanding the general approaches European courts take to receive and retain technical and scientific expertise.

The first category, typically appearing in common-law jurisdictions, are judiciaries that primarily use **experts retained by the parties**.[115] The U.K. is perhaps the best example of this system. However, in the U.K., the court may also appoint "joint experts" if both parties in litigation agree to the appointment of the expert.[116]

Poland's administrative courts are an interesting example in this category. In general, Polish administrative courts are courts of cassation—meaning their role is confined to determining the legality of the state's action and not to determine the facts of the case.[117] Courts of cassation can, if necessary, refer an issue back to the relevant agency for them to course correct, rather than quashing an agency's action entirely or crafting their own remedy, as in a reformatory system. In reaching a decision, Polish administrative courts "only evaluate whether evidence gathered by administrative authorities was collected and assessed correctly" and "[j]udges do no use expert's help."[118] Still, parties in a Polish administrative court can present expert testimony from a party-retained expert, which Polish courts must consider and either explain as consistent with the administrative authorities' opinion, incorrect, or requiring the administrative authority to update its analysis.[119]

The second category, typical of civil law jurisdictions and often more frequent in administrative rather than civil cases, utilizes **court-appointed experts**—meaning experts with no interest in the litigation other than to inform the judges on technical and scientific matters.[120] Most continental

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[114] Katalin Sulyok et al., *2019 EUFJE Conference: The Role of Science in Environmental Adjudication Summary Report* 3, EUR. UNION F. OF JUDGES FOR THE ENV'T (Sept. 14, 2019), https://www.eufje.org/images/docConf/hel2019/Summary_report_Questionnaire_EUFJE2019.pdf.

[115] Mercedes Fernandez-Lopez, *Expert Evidence in Civil Law Systems*, *in* LANGUAGE AS EVIDENCE 85, 91 (Victoria Guillen-Nieto & Dieter Stein eds., 2022).

[116] *UK Questionnaire Response*, *supra* note 50.

[117] Marcin Wiacek, *Legal Position of Administrative Courts in Poland*, 23 INT'L CMTY. L. REV. 526, 526 (2021).

[118] *EUFJE Annual Conference 2019 Questionnaire—Poland Response*, EUR. UNION F. OF JUDGES FOR THE ENV'T, https://eufje.org/images/docConf/hel2019/EUFJE_Questionnaire_2019_POLAND.pdf (2019).

[119] *Id.*

[120] Anne-Lise Sibony, *Expert Evidence Before the EC Courts*, 45 COMMON MKT. L. REV. 941, 942 (2008):

> The first model is encountered essentially in mainland European countries (e.g., France). In these countries, expert evidence is in most cases adduced by a neutral expert appointed by the court itself. Once the expert has submitted his report, the court formally remains the decision-maker, but it rarely departs from the expert's findings. The second model comes from the common law tradition, in which the parties themselves generally adduce expert evidence.

Remme Verkerk, *Comparative Aspects of Expert Evidence in Civil Litigation*, 13 INT'L J. EVIDENCE & PROOF 167, 167 (2009) ("European Continental jurisdictions have traditionally used only court-appointed experts. Common law jurisdictions have almost exclusively resorted to experts retained by the parties.").

European countries, including, but not limited to, Austria, Albania, Belgium, Bulgaria, Croatia, Denmark, Estonia, France, Germany,[121] Italy, the Netherlands, Portugal, and Spain, primarily use court-appointed experts to gather expert evidence. The procedures for court-appointed experts vary from country to country, but the most common process is for judges to select experts from preexisting lists. The CJEU can also call upon independent experts itself, although it rarely does so.[122]

Many of these jurisdictions allow for the opinions of party-retained experts as well. However, in submissions to the EUJFE, some countries noted that the opinion of court-appointed experts typically carries more weight.[123] For example, the Estonian submission states, "the opinions of party-appointed experts are in practice considered merely as any other documentary evidence, i.e., having less evidentiary strength than the opinions of court-appointed experts, whose impartiality is guaranteed by procedural rules."[124]

Finally, some countries, including Finland, Norway, and Sweden, employ "**expert judges**" in some capacity.[125] The distinguishing feature of an expert judge, as opposed to a court-appointed expert witness, is that the expert judge has an equal say in the case's ultimate resolution when part of a judicial panel.

Many Swedish cases that concern climate change, such as challenges to natural gas permit applications, come before this country's distinct land and environmental court system. That system, which has both civil and administrative jurisdiction, its own enforcement powers, and is empowered to adjudicate all cases concerning Sweden's principal environmental statute (the Environmental Code), is an interesting example.[126] Courts in that system are composed of four members: one legally trained district court judge, one environmental technical adviser who works full time as an environmental judge, and two other lay expert members appointed for the specific case who are each equals in the decisionmaking process.[127] Finland's administrative courts similarly use full-time expert technical judges, who typically have an equal say in judicial panels that include lay judges.[128]

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[121] Sven Timmerbeil, *The Role of Expert Witnesses in German and U.S. Civil Litigation*, 9 ANN. SURV. INT'L & COMPAR. L. 163, 163 (2003).

[122] Christoph Sobotta, *How the Court of Justice of the European Union Deals With Scientific Knowledge*, EUR. EXPERTISE & EXPERT INST. (Jan. 7, 2020), https://experts-institute.eu/en/expertise-law-and-jurisprudence/court-of-justice-of-the-european-union-and-scientific-knowledge/:

> These developments demonstrate a certain scope for the employment of independent experts by the European courts. However, up to now, there is extremely limited court practice of this type. Occasionally, the Court has invited the European Data Protection Supervisor as an expert on data protection issues and, most recently, it has asked another EU expert body, the European Union Aviation Safety Agency, to explain certain issues of aviation security. Apart from these isolated examples, however, it is still up to the parties to relevant cases to submit convincing evidence, including expert testimony, to incite doubt of the administrative assessment.

[123] Sulyok et al., *supra* note 114.

[124] *EUFJE Annual Conference 2019 Questionnaire—Estonia Response*, EUR. UNION F. OF JUDGES FOR THE ENV'T, https://eufje.org/images/docConf/hel2019/EUFJE_Questionnaire_2019_ESTONIA.pdf (2019).

[125] Sulyok et al., *supra* note 114; Sobotta, *supra* note 122.

[126] Ulf Bjallas, *Experiences of Sweden's Environmental Courts*, 3 J. CT. INNOVATION 178, 180 (2010); *Sweden Questionnaire Response*, *supra* note 51.

[127] *Id.* at 180.

[128] Sinikka Kangasmaa & Tiina Paloniitty, *Securing Scientific Understanding: Expert Judges in Finnish Environmental Administrative Judicial Review*, 27 EUR. ENERGY & ENV'T L. REV. 125, 125 (2018).

By contrast, Norwegian courts appoint expert judges on a case-by-case basis, after which the expert judge is an equal member of the panel.[129] Most of the countries that employ expert judges also allow for party-retained and court-appointed experts.

Expert Judges, Court-Appointed Experts, and Party-Retained Experts	Court-Appointed Experts, and Party-Retained Experts	Only Party-Retained Experts
Finland Norway Sweden	Most of Continental Europe including Austria, Albania, Belgium, Bulgaria, Croatia, Denmark, Estonia, France, Germany, Italy, the Netherlands, Portugal, and Spain	U.K. Poland

Figure 3. Table of Approaches to Expert Testimony.

B. How Do European Courts Handle Expert Scientific Evidence?

When it comes to court-appointed scientific experts, most civil law jurisdictions appoint experts from predetermined lists of recognized experts in the field.[130] For example, French civil courts appoint experts from lists maintained by the Court of Cassation[131] (the French high court for civil law matters) and aided by the National Council of Companies of Justice Experts.[132] Countries such as Norway and Belgium report using similar national registers.[133] The Netherlands uses an independent authority, the Foundation of Independent Court Experts in Environmental and Planning Law, where judges can request expert opinions on a range of environmental issues from an independent, impartial expert.[134] While these court-appointed experts are normally free from conflicts of interest in the outcome of the litigation, most jurisdictions allow parties to challenge the appointment of an expert witness for bias or lack of impartiality.[135]

The use of court-appointed witnesses across most European jurisdictions renders the process for party-retained experts less crucial and scrutinized than in the United States. As a result, there are fewer articulable standards across Europe for controlling the admission of a party's expert evidence. In fact, Norway's 2019 submission to the EUFJE noted the lack of a method for non-expert judges "to review the validity of the scientific evidence prior to hearing as with the Daubert-test in the US."[136]

Part of the role of the judge who appoints an expert is to define the scope of that appointment.[137] In France, for example, the same judicial order that appoints an expert witness also establishes the scope of the expert's task and the questions they should answer.[138] Even in the U.K., where court-

[129] *EUFJE Annual Conference 2019 Questionnaire—Norway Response*, EUR. UNION F. OF JUDGES FOR THE ENV'T, https://eufje.org/images/docConf/hel2019/EUFJE_Questionnaire_2019_NORWAY.pdf (2019).
[130] Sulyok et al., *supra* note 114.
[131] *EUFJE Annual Conference 2019 Questionnaire—France Response* 5, EUR. UNION F. OF JUDGES FOR THE ENV'T, https://www.eufje.org/images/docConf/hel2019/EUFJE_Questionnaire_2019_FRANCE.pdf (2019).
[132] Fernandez-Lopez, *supra* note 115, at 92.
[133] *Norway Questionnaire Response*, *supra* note 129.
[134] UNEP, ENVIRONMENTAL COURTS AND TRIBUNALS: A GUIDE FOR POLICYMAKERS 49 (2022).
[135] Sulyok et al., *supra* note 114.
[136] *Norway Questionnaire Response*, *supra* note 129.
[137] Sulyok et al., *supra* note 114, at 14.
[138] *France Questionnaire Response*, *supra* note 131, at 5.

appointed experts are rare, judges work with the parties to prepare a list of questions to be answered by the expert.[139] In fact, the U.K.'s Rules of Civil Procedure instruct courts to duly restrict expert evidence "to that which is reasonably required to resolve the proceedings."[140]

C. What Forms of Scientific Evidence Are Admitted in Court?

The type of scientific evidence admitted in climate change litigation also may vary significantly between European judiciaries. The principal differences include: (1) whether courts commonly employ nondocumentary and nontestimonial evidence such as site inspections; (2) the use of what the EUJFE calls "informal scientific sources"—namely independent scientific reports from national institutions or international organizations on climate change (rather than a court-appointed expert); and (3) how courts evaluate[141] the scientific conclusions of their jurisdiction's administrative bodies. This subsection analyses those three types of evidence.

1. Nondocumentary, nontestimonial evidence

According to the EUFJE member submissions, scientific expert opinions, typically expressed through oral testimony or an expert's written report made for trial, is the most common form of scientific evidence in climate litigation.[142] However, the submissions to the EUFJE also note the proliferation of nontraditional forms of evidence, particularly site visits from court officials. The most prominent example of this is *Luciano Lliuya v. RWE AG*, currently on appeal before the Higher Regional Court of Hamm (Germany). The case features Saul Luciano Lliuya, a Peruvian farmer from a village in Peru, who is seeking a declaratory judgment and damages against Germany's largest electricity producer, RWE.[143] The district court initially dismissed Lliuya's complaint on admissibility grounds. However, the appeals court recognized the complaint and moved the proceedings into the evidentiary phase, part of which has included a visit by German judges and court-appointed experts to the Lliuya home and the relevant glacier.[144]

2. Scientific Reports

One common feature of European climate litigation is a reliance on what EUFJE refers to as "informal scientific sources"—scientific references other than expert evidence. The most common type of "informal scientific sources" are scientific reports issued by national institutions or international organizations.[145] According to the EUJFE, the use of such information can "enhance the scientific competence of judges and their ability to control party-adduced scientific evidence, by equipping the court with scientific information that is independent from the parties."[146] The

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[139] *UK Questionnaire Response*, *supra* note 50.
[140] CPR 35 (U.K.).
[141] Sulyok et al., *supra* note 114.
[142] Sulyok et al., *supra* note 114.
[143] *See supra* note 19 and accompanying text.
[144] Dan Collyns, *German Judges Visit Peru Glacial Lake in Unprecedented Climate Crisis Lawsuit*, THE GUARDIAN (May 27, 2022), https://www.theguardian.com/environment/2022/may/27/peru-lake-palcacocha-climate-crisis-lawsuit; Sandra Nichols Thiam et al., *Weathering the Storm of Global Climate Litigation: Enabling Judges to Make Sense of Science*, 54 GEO. J. INT'L L. 564, 588 (2023). A hearing to discuss reports from the court-appointed experts is scheduled for March 2025.
[145] Sulyok et al., *supra* note 114.
[146] *Id.*

impartiality of the evidence and its independence from the parties in litigation, as well as its low cost and availability, also make this type of evidence particularly useful for judges.[147]

The most common scientific reports mentioned in European climate litigation are the Intergovernmental Panel on Climate Change's (IPCC's) periodic assessment reports, which are prepared by an international panel of climate scientists and feature the latest developments in climate science. IPCC assessment reports consistently appear in regional and domestic European judicial opinions in climate cases, including in *Neubauer*,[148] *Urgenda*,[149] and *Verein KlimaSeniorinned Schweiz*.[150] In these cases, judges used the IPCC report to confirm the anthropogenic nature of climate change and to discuss global warming and its expected impacts under different emissions scenarios. The reports' emission scenarios allow climate litigants to challenge their government's action or inaction as inconsistent with international climate goals such as those expressed in the Paris Agreement (see *Urgenda*).[151] Other examples of "informal scientific sources" frequently cited in European courts include reports issued by national research institutions and other reports from international organizations (e.g., the International Union for Conservation of Nature's (IUCN's) Red List, the Codex Alimentarius of the Food and Agriculture Organization (FAO)).[152]

Box 5. Use of Evidence From Geospatial Technologies

In its 2019 conference concerning the role of science in environmental adjudication, the EUFJE specifically asked participating judges about the role of one form of scientific evidence in environmental litigation: geospatial technologies such as satellite imagery.[153] Geospatial data, methods, and tools provide climate scientists valuable insights into evolving weather patterns, rising sea levels, climate's growing risks to human health, and much more.[154]

The use of geospatial evidence is increasing across all types of litigation, including in criminal prosecutions,[155] international human rights litigation,[156] and European environmental cases. Most EUFJE surveys reported having used geospatial evidence. For example, in *European Commission v. Republic of Poland*, geospatial evidence played a crucial role in demonstrating that Poland failed to fulfill its obligations to protect the Białowieska Forest by allowing illegal logging permits.[157] Furthermore, most jurisdictions noted a court's ability to order the gathering of relevant geospatial intelligence by the court's own motion.[158]

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147 *Id.*
148 Bundesverfassungsgericht [BVerfG] [Federal Constitutional Court], Mar. 24, 2021, 1 BvR 2656/18, ¶ 1-270, https://www.bverfg.de/e/rs20210324_1bvr265618.html (Ger.).
149 *Urgenda Foundation v. State of Netherlands*, *supra* note 112.
150 *Verein KlimaSeniorinnen Schweiz*, No. 53600/20, at 25.
151 Marjan Peeters, *Climate Science in the Courts*, *in* THE CONTESTATION OF EXPERTISE IN THE EUROPEAN UNION 145, 159 (Vigjilenca Abazi et al. eds., 2021).
152 Sulyok et al., *supra* note 114.
153 Sulyok et al., *supra* note 114.
154 Maged N. Kamel Boulos & John P. Wilson, *Geospatial Techniques for Monitoring and Mitigating Climate Change and Its Effects on Human Health*, 22 INT'L J. HEALTH GEOGRAPHICS 2 (2023).
155 Sara Kendall & Kamari Maxine Clarke, "*The Beauty . . . Is That It Speaks for Itself": Geospatial Materials as Evidentiary Matters*, 23 L. TEXT CULTURE 91 (2019).
156 *See, e.g.*, THERESA L. HARRIS ET AL., GEOSPATIAL EVIDENCE IN INTERNATIONAL HUMAN RIGHTS LITIGATION (2018).
157 Marion Solletty, *EU and Poland Go Head-to-Head Over Logging in Ancient Forest*, POLITICO (Sept. 11, 2017), https://www.politico.eu/article/eu-commission-ecj-and-jan-szyszko-poland-go-head-to-head-over-logging-in-ancient-bialowieza-forest/. Case C-441/17, Eur. Comm'n v. Republic of Poland, ECLI:EU:C:2018:255 (Apr. 17, 2018).
158 Sulyok et al., *supra* note 114.

3. Administrative Authorities' Scientific Analysis

One frequently featured form of evidence in climate litigation is scientific assessments from the state's domestic authorities, especially in administrative law cases, although the amount of deference given and the standard of proof required may differ.

Based on the summary report from the EUFJE's 2019 conference concerning the role of science in environmental adjudication, European countries largely fall into one of three categories for deference to an administrative body's scientific conclusions. First, and most rare, are the jurisdictions that grant administrative bodies near total deference to their scientific conclusions. For example, Ukraine's submission to the EUFJE states simply that its "court[s] cannot review the scientific assessments and conclusions of the competent domestic authorities."[159]

Rather than total deference, jurisdictions more commonly operate on a rebuttable presumption for the findings of a competent administrative authority. For example, the CJEU's case law has established a standard of "broad discretion,"[160] whereby the administrative authority's (usually the European Commission or Council) finding on a complex or highly technical matter is only disregarded when "evidence that demonstrates the finding is vitiated by manifest error of appreciation."[161] Environmental administrative courts in Belgium employ a similar manifest error standard.[162]

Many other jurisdictions apply tests similar to manifest error but differ slightly in the extent of deference granted to the administrative body.[163] For example, U.K. courts typically apply an unreasonableness standard from *Associated Provincial Pictures Houses Ltd. v. Wednesbury Corporation*, under which the reviewing court should not "substitute its own inexpert view of the science"[164] for that of an expert agency.[165] However, the U.K.'s adversarial system ensures that all expert opinions, including those of an administrative agency, are subject to rebuttal and cross-examination from the opposing party.[166] Spain similarly tasks its judiciary with reviewing administrative authorities for "unreasonable, illogical, or absurd results."[167]

Box 6. CJEU's Evolving Standard of Broad Discretion and Manifest Error

[159] *Ukraine Questionnaire Response*, *supra* note 61.
[160] Herwig C.H. Hofmann, *Delegation, Discretion, and the Duty of Care in the Case Law of the Court of Justice of the European Union*, at 7 (U. Lux. L., Working Paper No. 2018-004, 2018).
[161] Sobotta, *supra* note 122.
[162] *EUFJE Annual Conference 2019 Questionnaire—Belgium Response*, EUR. UNION F. OF JUDGES FOR THE ENV'T, https://www.eufje.org/images/docConf/hel2019/EUFJE_Questionnaire_2019_BELGIUM.pdf (2019).
[163] Sulyok et al., *supra* note 114.
[164] R. (British Union for the Abolition of Vivisection) v. Secretary of State for the Home Department [2008] EWHC 892 (Admin) QB/2008/APP/0148, at 1 (U.K.).
[165] For a discussion of this standard, see Adam Perry, *Wednesbury Unreasonableness*, 82 CAMBRIDGE L.J. 483, 483, 487 (2023).
[166] *UK Questionnaire Response*, *supra* note 50.
[167] Sulyok et al., *supra* note 114.

The CJEU's standards of broad discretion and manifest error have historically meant that the Court has been hesitant to probe the scientific underpinnings of decisions from the European Commission or Council.[168] For example, in *Hellenic Republic v. Commission of the European Communities* (Case C-86/03), Greece challenged the Council's refusal to exempt from EU air pollution laws Greece's proposed use of heavy fuel oils with a sulphur content greater than 1%.[169] To use such fuel, EU law required Greece to demonstrate that the resulting pollution would stay below levels where "significant harmful effects on sensitive elements of the environment do not occur according to current knowledge."[170]

In assessing whether the EU's rejection of Greece's application was lawful, the CJEU noted "the broad margin of discretion which the Council enjoys in attaining the objectives of Community environmental policy" and that "review by the Court must necessarily be limited to the question of whether [the Council] . . . committed a manifest error of appraisal." The Court was satisfied that the Council's decision rested on appropriate factors (such as whether a Greek exemption would increase sulphur dioxide pollution in other Member States) and appropriate principles underpinning the law's purpose (such as the precautionary principle). Accordingly, the CJEU concluded that no such "error of appraisal has been demonstrated in this case" and that Greece's "objection of unlawfulness must be rejected."[171]

However, some academic scholars have noted that the CJEU has become gradually more willing to engage with the Commission or Council's scientific assessments. For example, scholars Marta Movillo and Maria Weimer posit that the CJEU has been gradually intensifying its "judicial scrutiny of scientific reasoning" behind regulatory measures.[172] Rather than changing the applicable standard or review, however, the Court's transition has occurred "in a subtler way through the Court's re-interpretation of the applicable standard."[173] Therefore, while the CJEU still applies the same broad discretion and manifest error standards, beginning around the turn of the millennium, the Court began to increasingly "ascertain[ ] whether there is a manifest error by engaging in a more searching review of both the scientific evidence and the administrative reasoning."[174]

On the other end of the spectrum from total deference are jurisdictions that apply de novo review, where judges evaluate anew the credibility of the government's expert opinions and evidence. In these jurisdictions, the courts may, for example, inquire whether administrative bodies' scientific findings conform to state-of-the-art scientific guidelines.[175]

Sweden, Croatia, Czechia, Hungary, Germany, and Bulgaria all reported applying standards similar to de novo review to administrative authorities' scientific conclusions.[176] However, there are practical limitations to de novo review of scientific assessments. For example, while German statutory law requires courts to review the scientific assessments of domestic authorities, the German report to the EUFJE acknowledges a court's comparative lack of scientific expertise creates a "de facto limit on administrative judicial control."[177]

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[168] Hofmann, *supra* note 160; Sobotta, *supra* note 122.
[169] Case C-86/03, Hellenic Republic v. Comm'n of the Eur. Communities, ECLI:EU:C:2005:385 (June 16, 2005).
[170] *Hellenic Republic*, ECLI:EU:C:2005:385, at ¶ 6.
[171] *Hellenic Republic*, ECLI:EU:C:2005:385, at ¶¶ 92-98.
[172] Marta Morvillo & Maria Weimer, *Who Shapes the CJEU Regulatory Jurisprudence? On the Epistemic Power of Economic Actors and Ways to Counter It*, 1 EUR. L. OPEN 510, 510 (2022).
[173] *Id.* at 522.
[174] *Id.* at 523.
[175] Sulyok et al., *supra* note 114.
[176] *Id.*
[177] *Germany Questionnaire Response*, *supra* note 54.

D. How Do Courts Evaluate Scientific Evidence, Reconcile Conflicts, and Handle Uncertainty in Scientific Evidence?

1. Reconciling Conflicting Scientific Evidence

The process European courts use for navigating conflicting scientific evidence varies significantly across jurisdictions. The general options, however, include relying on the parties' experts and their cross-examination to illuminate the highest quality scientific opinion, leaning on the knowledge of expert judges or court-appointed experts, or appointing independent experts for the explicit purpose of evaluating conflicting evidence.[178]

In common-law adversarial systems like the U.K., Ireland, and Cyprus, cross-examination by opposing parties is the primary means by which judges can evaluate the comparative strengths of conflicting scientific evidence. Through cross-examination, judges may evaluate the relative qualifications of competing experts, the quality of each expert's or other scientific evidence's data, the extent to which each expert or other scientific evidence has applied rigorous scientific methods of evaluation, and more.[179]

In civil law jurisdictions, there is a wide variety of approaches to reconciling conflicting scientific evidence. While some jurisdictions leave judges to independently evaluate the parties' contradictory evidence in accordance with the principle of free evaluation of evidence, others allow judges to seek the help of court-appointed experts to assess contradictory evidence. For example, in EUFJE submissions, Estonia, Czechia, Slovakia, and Bulgaria reported allowing judges to employ court-appointed experts to review conflicting scientific evidence and assist judges in interpreting scientific material. Expert or technically qualified judges, as appear in countries like Finland, Sweden, and Norway, also play a crucial role in evaluating the relative credibility of conflicting pieces of scientific evidence.[180]

2. Scientific Uncertainty and the Precautionary Principle

Many European court systems employ the precautionary principle to allow policies that prioritize human health and safety in the face of uncertainty in the relevant evidence. The precautionary principle is embedded in Article 191 of the Treaty on the Functioning of the European Union, and it aims to ensure a high level of environmental protection through preventative policymaking in the face of risk, even when those risks are not fully understood.[181] The principle applies in most instances of environmental risk, including in climate policies.

The European Court of Justice often applies the precautionary principle when it is asked to evaluate environmental regulatory measures. For example, in *Commission v. Denmark*, the ECJ upheld Denmark's strict regulations on food additives because "a Member State may, in accordance with the precautionary principle, take protective measures without having to wait until the reality and

[178] Sulyok et al., *supra* note 114.
[179] *UK Questionnaire Response*, *supra* note 50.
[180] Sulyok et al., *supra* note 114.
[181] Commission Communication on the Precautionary Principle, COM (2000) 1 final (Feb. 2, 2000), https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52000DC0001.

seriousness of those risks are fully demonstrated."[182] The precautionary principle has similarly appeared in ECJ cases related to climate change. For example, in *Afton Chemical Limited v. Secretary of State for Transport*, a British chemical company challenged a provision of the EU's fuel quality directive, which obliges Member States to require fuel suppliers to reduce the life cycle GHG intensity of transport fuels. The company challenged the scientific support for EU limits and labeling requirements for the use of a particular fuel additive (MMT). However, the ECJ found the regulation was justified because

> where it proves to be impossible to determine with certainty the existence or extent of the alleged risk because of the insufficiency, inconclusiveness or imprecision of the results of studies conducted, but the likelihood of real harm to public health persists should the risk materialize, the precautionary principle justifies the adoption of restrictive measures, provided they are non-discriminatory and objective.[183]

Many domestic European judiciaries have also employed the precautionary principle both when applying EU law and in situations where their countries have adopted the precautionary principle into their domestic legal frameworks. In their reports to the EUFJE, for example, Czechia and Finland reported the precautionary principle as being their primary means of resolving cases dealing with persistent scientific uncertainty.[184] The *Urgenda* decision represents an example where a domestic court employed the principle. The Dutch Supreme Court rejected arguments that scientific uncertainty regarding climate impacts obviated the need for State action, saying, "the fact that full scientific certainty regarding the efficacy of the ordered reduction scenario is lacking does not mean, given the due observance of the precautionary principle, that the State is entitled to refrain from taking measures."[185]

E. Courts Handling Climate Science: Practical Examples

Finally, an analysis of three European climate cases from three different jurisdictions demonstrates many of the issues identified above in practice, including the important role of scientific evidence in climate litigation. In all three cases, the plaintiffs sought or are seeking stronger government action to address climate risks. All three cases also involved significant discussions of climate science in both the parties' arguments and the judicial decisions. The outcome of these cases and the decisions in *Urgenda* and *Verein KlimaSeniorinnen Schweiz* not only set precedent for future climate litigation, but also suggests jurisdictions in Europe are likely to see an increase in such cases.

Urgenda

Urgenda Foundation v. State of the Netherlands, decided by the District Court of The Hague in 2015 and upheld by the Hague Court of Appeal in 2018 and ultimately by the Dutch Supreme Court in

[182] Case C-192/01, Commission of the European Communities v. Kingdom of Denmark, ECLI:EU:C:2003 (Sept. 23, 2003).
[183] Case C-343/09, Afton Chemical Ltd v Sec'y of State for Transp., 2010 E.C.R. I-07027, at ¶ 60.
[184] Sulyok et al., *supra* note 114 at 31.
[185] HR 20 december 2019, ECLI:NL:HR:2019:2007 (Staat der Nederlander/Urgenda Foundation), Case No. 19/00135, *available at* ¶ 63 [hereinafter *Urgenda* Supreme Court].

2019,[186] makes extensive use of climate science to establish the State's obligations. Central to the courts' decisions were reports and findings from the IPCC, particularly those contained in its Fourth Assessment Report (AR4), which underpinned the legal arguments.

In this case, the trial and appellate courts heavily relied on AR4 to substantiate the urgency of reducing emissions.[187] Specifically, the trial court's mandate—that the Dutch government must reduce GHG emissions by at least 25% below 1990 levels by 2020—was grounded in AR4's findings, which indicated that developed countries needed to reduce emissions by 25-40% by 2020 to maintain a reasonable chance of limiting global warming to 2 degrees Celsius (°C).

Although the appellate court recognized that limiting warming to 2°C may be inadequate to protect against severe climate impacts—a concern more fully addressed in AR5, which showed that damages were already occurring at current levels of warming—it did not extend the required reduction targets beyond what was indicated in AR4, as the claim itself did not seek reductions based on AR5's lower temperature thresholds.

Other scientific facts found by the trial court include:

- the increasing rate of Earth's warming between 1850 and 2017 (shown through a NASA diagram presented by Urgenda during oral argument),
- the continued rise of global GHGs (established during oral argument using data from the European Database for Global Atmospheric Research), and
- the increasing risk of reaching climate change "tipping points," or abrupt changes to the climate for which it is difficult to prepare (supported by the IPCC's Fifth Assessment Report).[188]

The trial court emphasized the Dutch government's legal obligation to protect its citizens from the dire risks associated with climate change. This obligation was grounded in the principles of the European Convention on Human Rights, particularly the right to life (Article 2) and the right to private and family life (Article 8). The court determined that failing to adopt adequate measures to reduce emissions constituted a breach of these rights, as the scientific evidence clearly demonstrated the significant threats posed by climate change to human health and safety.[189]

At issue was what level of emissions reductions would be required to protect these rights. The trial court's ultimate holding—that the Dutch government must limit GHG emissions by 25% below 1990 levels by 2020—was partially based on the 25-40% range outline in IPCC AR4. While the court did not imply that the IPCC's reports created a legal obligation, it did say the body's scientific conclusion "confirms the fact that at least a 25-40% reduction of CO_2 emissions as of 2020 is

[186] Rechtbank Den Haag, 24 june 2015, ECLI:NL:RBDHA:2015:7196 (Stichting Urgenda/Staat der Nederlanden) (Neth.) [hereinafter *Urgenda* District Court Opinion]; Hof's-Gravenhage 9 oktober 2018, AB 2018, 417 m.nt. GA van der Veen, Ch.W. Backes (Staat der Nederlanden/Stichting Urgenda) (Neth.) [hereinafter *Urgenda* Court of Appeal Opinion]; HR Dec. 20, 2019, JM 2020/33 m.nt. Douma, W.Th. (De Staat Der Nederlanden/ Stichting Urgenda) [hereinafter *Urgenda* Supreme Court Opinion].

[187] While both AR4 and the Fifth Assessment Report (AR5) were referenced, AR4 was the primary basis for the court's findings.

[188] *Urgenda* Court of Appeal Opinion, *supra* note 186, at ¶ 44.

[189] *Id.* at ¶ 73.

required to prevent dangerous climate change."[190] The Dutch Supreme Court affirmed, saying the Dutch government's duty of care "entails that, in 2020, the Netherlands must achieve a reduction in GHG emissions of 25-40% compared to emissions in 1990, in accordance with the target referred to in AR4."[191]

The trial court (the Hague District Court) rejected the government's argument that its existing climate policies were sufficient, stating that the scientific consensus necessitated more ambitious action.[192] On this issue, the Dutch Supreme Court simply stated, "a substantiation based on climate science was never given, while it is an established fact that postponing reductions in the meantime will cause continued emissions of CO_2, which in turn will contribute to further global warming."[193]

This ruling effectively mandated that the Dutch government integrate consensus climate science into its emissions reduction policy. On April 24, 2020, the Dutch government announced its plan to comply with the *Urgenda* ruling, saying it would reduce coal-fired power plant capacity and invest in preserving biodiversity and clean air.[194]

Verein KlimaSeniorinnen Schweiz and Others v. Switzerland (ECtHR)

The *Verein KlimaSeniorinnen Schweiz* case, brought before the ECtHR, similarly relies on a range of scientific evidence to show violations of Article 8 of the European Convention on Human Rights. Petitioners, a group of senior-aged Swiss women, argued that the Swiss government's inadequate climate policies violated their rights under the Convention to privacy and family life.

Similar to *Urgenda*, the ECtHR heavily relied on the IPCC. The ECtHR primarily used IPCC Assessment Reports to describe its general observations on climate change and the necessary emissions reductions from countries like Switzerland.[195] However, the ECtHR also had to weigh evidence supporting the plaintiffs' claims that climate change disproportionately impacts older citizens.

Central to the plaintiffs' argument was their contention that, in Switzerland specifically, "climate change-induced heatwaves would increasingly cause further deaths and illnesses in older women with chronic diseases."[196] On this point, the court primarily cited government data concerning the impact of climate change in Switzerland. For example, the court cited the Swiss Federal Office of Meteorology and Climatology for the fact that "the summers of 2003, 2015, 2018, 2019 and 2022 had been the five warmest summers on record in Switzerland, with those of 2003 and 2022 being the first and second hottest since records had begun."[197] These heatwaves resulted in almost 1,000

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[190] *Id.* at ¶ 51.
[191] *Urgenda* Supreme Court Opinion, *supra* note 186, at 14.
[192] *Urgenda* District Court Opinion, *supra* note 186, at 4.31(finding that "[t]he Dutch reduction target is therefore below the standard necessary by climate science and the international climate policy").
[193] *Urgenda* Supreme Court Opinion, *supra* note 186, at 14.
[194] *CO_2—Reduction Plan: 25% in 2020*, Urgenda Foundation (2020), https://www.urgenda.nl/en/themas/climate-case/dutch-implementation-plan/#:~:text=On%20April%2024%202020%2C%20the%20Dutch%20government%20announced,Court%20in%20Urgenda%E2%80%99s%20climate%20case%20against%20the%20government (last visited Mar. 10, 2025).
[195] *Verein KlimaSeniorinnen Schweiz*, App. No. 53600/20, at 25.
[196] *Verein KlimaSeniorinnen Schweiz*, App. No. 53600/20, at 134.
[197] *Verein KlimaSeniorinnen Schweiz*, App. No. 53600/20, at 27.

additional heat-related deaths in 2003 and 800 in 2015.[198] Using studies from the Swiss government as well as academia, the court went on to note how the majority of those additional deaths were persons over 75, including 80% of the additional deaths from the 2003 heatwave.[199] Based on this evidence, the court held that there was a clear link between the government's inadequate climate action and the increased health risks faced by the KlimaSeniorinnen.

Luciano Lliuya v RWE AG

The *Luciano Lliuya v. RWE* case also underscores the interplay between scientific evidence and judicial reasoning in climate litigation and is a particularly important case for the application of climate attribution science to civil liability claims. In this ongoing litigation, Peruvian farmer Luciano Lliuya sued RWE, Germany's largest electricity producer, for its contribution to climate change, seeking compensation for the costs of protecting his home in Huaraz, Peru, from the risks he claims are posed by a glacial lake outburst flood exacerbated by global warming.

Central to Lliuya's argument is the scientific evidence he claims links RWE's emissions to the increased risk of flooding in Lliuya's village. Lliuya's complaint, filed in 2015, relied on studies demonstrating that climate change, driven by GHG emissions, was accelerating glacial melt in the Andes. The complaint also directed the court to the IPCC's Fifth Assessment Report, which concluded: "there is a very high degree of confidence in the attribution of climate change to the glacier retreat in the Andes in South America."[200] And it cited various forms of "attribution science," which seeks to quantify the contribution of specific sources to global warming and, subsequently, to specific climate impacts.

The complaint's central piece of attribution evidence was the 2014 "Carbon Majors Report," which applies a methodology to quantify the GHG emissions attributable to major fossil fuel producers.[201] The report identified RWE as one of the top emitters of GHGs historically. It estimated the company had been responsible for 0.47% of global emissions from 1854 to 2010, thereby linking the company's activities to the broader impacts of climate change.[202] Consequently, Lliuya's complaint asks RWE to provide damages in the form of 0.47% of the costs of protecting Lliuya's home from glacial flooding.[203]

The German trial court (the 2nd Civil Chamber of the District Court Essen) ruled the complaint was inadmissible, partially on the grounds that the causal connection between RWE's emissions and glacial flooding in the Andes is too indeterminate. It explained that while "from a scientific

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[198] *Verein KlimaSeniorinnen Schweiz*, App. No. 53600/20, at 27.
[199] *Verein KlimaSeniorinnen Schweiz*, App. No. 53600/20, at 27.
[200] INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2014: IMPACTS, ADAPTATION, AND VULNERABILITY 1544 (Vicente R. Barros et al. eds., 5th ed. 2014); Statement of Claim at 14, Lliuya v. RWE AG, 14/0354Z/R/rv (LG Essen 2015) (Ger.).
[201] Statement of Claim at 18, Lliuya v. RWE AG, 14/0354Z/R/rv (LG Essen 2015) (Ger.).
[202] Richard Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers*, 122 CLIMATIC CHANGE 1854 (2014); Camilla Hodgson, *Who Pays for Climate Change? The Peruvian Suing a German Utility*, FINANCIAL TIMES (July 5, 2022), https://www.ft.com/content/e26c5813-354b-4b6b-8bc1-70b39ef9837c.
[203] Claimant Grounds of Appeal at 2, Lliuya v. RWE AG, 14/0354Z/R/rv (LG Essen 2015) (Ger.).

perspective, every emission may be causational for the state of the climate as it presents itself today, [ ] but this assessment has no bearing on the question of legal attribution to individual emitters."[204]

In 2017, the German appellate court (Higher Regional Court in Hamm) disagreed and ruled the complaint was legally admissible. By allowing the suit to move to the evidentiary phase, the court recognized the potential validity of Lliuya's claims, implying that if scientific evidence could substantiate the link between RWE's emissions and the specific risk faced by Lliuya, the company could be held liable for its proportional contribution to the risk. The court specifically instructed the parties to designate appropriate experts to answer the following questions: (1) whether a flood or mudslide caused by glacial melting poses a serious threat to Lliuya's property, and (2) whether RWE's emissions' contribution to climate change is "measurable and calculable, and accounts for 0.47% of the total."[205] The ultimate outcome of this case is likely to have significant implications for claims involving climate attribution evidence and liability for climate damages.

IV. Conclusion

Climate litigation is reaching national courts and multijurisdictional tribunals across Europe, with some decisions demonstrating the complicated interplay between the two. Litigation is expected to continue as climate impacts become more frequent and intense, the energy transition continues to drive the development of new projects, and as individual countries and the European Union put into place more climate-related policies. Courts throughout Europe will play an integral role in, among other things, articulating the roles and responsibilities of various actors, evaluating environmental reviews, evaluating companies' marketing claims, and assessing whether governments or private entities are setting sufficient, or making sufficient progress towards, emissions reduction targets.

[204] Lliuya v. RWE AG, Landgericht Essen [LG] [District Court Essen] Dec. 15, 2015, Rechtsprechung der Oberlandesgerichte in Strafsachen [OLGSt]; Thiam et al., *supra* note 144, at 587.
[205] Indicative Ct. Order and Order for the Hearing of Evidence, Lliuya v. RWE AG (OLG Hamm 2017) (Ger.).