

ANNIVERSARY ISSUE ARTICLE

The Responsibilities of Carbon Major Companies: Are They (and Is the Law) Doing Enough?

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Abstract

Transnational carbon major companies are responsible for over 30% of global industrial greenhouse gas emissions and exert tremendous influence over future global climate trajectories. Yet, they are not governed through top-down, stringent emissions limits, but are instead regulated largely by disclosure-only domestic requirements and market-based or voluntary corporate social responsibility mechanisms. Through an examination of the requirements of domestic laws such as the United Kingdom (UK) Climate Change Act 2008 and the UK Energy Act 2013, as well as the environmental and sustainability reports produced under the UK Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013, this article analyzes the regulatory requirements placed on carbon majors, and the climate change pledges and emissions of five UK-based carbon majors: BP, Royal Dutch Shell, BG Group, National Grid, and Centrica. The article concludes that the efforts to curb emissions in these carbon major entities are being subverted by company law, company theory and commercial norms such as shareholder wealth maximization.

Keywords: Carbon majors, Climate change, Corporate social responsibility (CSR), UK Climate Change Act 2008, UK Energy Act 2013, UK Companies Act 2006

1. INTRODUCTION

Carbon major companies are responsible for over 30% of global industrial greenhouse gas (GHG) emissions, and arguably control 'the future of the planetary

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climate system?¹ Carbon major companies are producers of oil, natural gas, coal and cement.² A number of these entities are transnational, non-state actors. Despite their tremendous contribution to global emissions, they are not regulated through stringent, top-down, transnational emissions limits, but are instead governed largely by disclosure-only requirements and market-based or voluntary corporate social responsibility (CSR) mechanisms. This article argues that company law and theory, as well as commercial norms such as shareholder wealth maximization, foster an environment in which companies are not compelled to significantly reduce their GHG emissions.

High-emitting, transnational companies have arguably been afforded much more freedom to emit than nation states. Such differentiated treatment for private environmental governance regimes has questionable legitimacy, considering not only the large volume of emissions produced by the companies themselves, but also (in the case of fossil fuel-centred companies) the nature of their products. Heede's quantitative analysis of historic fossil fuel and cement production records of 90 leading investor-owned, state-owned and nation-state producers of oil, natural gas, coal and cement concluded that 63% of cumulative worldwide emissions of carbon dioxide (CO₂) and methane from 1854 to 2010 were attributed to these 'carbon major' entities.³ Cumulatively, investor-owned companies are responsible for 315 gigatonnes of equivalent CO₂ (GtCO₂e) of emissions, compared with 312 GtCO₂e emitted by nation states.⁴ As a result, emissions from carbon major companies rival those of nation states. In addition, half of man-made CO₂ and methane emissions have been produced since 1984,⁵ which indicates that corporate emissions levels are not abating. Carbon major companies have accumulated considerable financial benefits from these emissions.⁶ Heede's analysis points to a wealth-based, as opposed to a state-based, approach to climate responsibility.⁷ While international law is primarily state-based, his analysis argues for the shifting of perspective from nation-state responsibility to corporate responsibility.⁸ His approach aligns with a more 'decentred' understanding of regulation, where responsibility may be imposed outside the traditional nation-state concept of regulation.⁹ Yet, the analysis of the mechanisms employed to mediate corporate emissions demonstrates that these carbon majors are not being mandated to reduce their emissions either by domestic regulation or by transnational, 'decentred' regulatory mechanisms. Unlike states, these companies are not subject to regulatory emissions limits, but are instead governed largely by disclosure-only requirements and

¹ R. Heede, 'Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854–2010' (2014) 122(1) *Climatic Change*, pp. 229–41, at 234, 237–8.

² *Ibid.*, p. 229.

³ *Ibid.*, p. 229.

⁴ 288 GtCO₂e were emitted by state-owned companies: *ibid.*, p. 234.

⁵ *Ibid.*, p. 234.

⁶ *Ibid.*, p. 236.

⁷ *Ibid.*, p. 231.

⁸ *Ibid.*, p. 238.

⁹ J. Black, 'Critical Reflections on Regulation' (2002) 27 *Australian Journal of Legal Philosophy*, pp. 1–35, at 2.

market-based or voluntary CSR mechanisms. Transnational companies have historically been subjected to self-regulatory mechanisms, and have opted for private environmental governance regimes, and voluntary mechanisms such as CSR. These mechanisms are not incentivizing carbon majors to reduce their emissions. This article argues that such differentiated treatment of carbon major emitters is anchored in company law requirements, as well as the commercial theories and norms which have come to dominate corporate approaches to climate change.

This article examines the role and adequacy of the mechanisms currently employed to mediate corporate emissions from five UK-based carbon major companies, and focuses on the pervasive impact that UK company law, transnational 'law and economics' theory, as well as commercial norms, have had on efforts by carbon major companies to reduce their GHG emissions. Through an examination of transnational regulatory regimes to which these companies are subject, including the European Union (EU) Emissions Trading Scheme (ETS), and a number of voluntary CSR and sustainable investment initiatives, this article analyzes the climate change pledges and emissions of BP Plc, Royal Dutch Shell Plc, BG Group Plc, National Grid Plc, and Centrica Plc. A number of the pledges and emissions are related in the companies' environmental and sustainability reports produced under the United Kingdom (UK) Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013.¹⁰ This article investigates the interactions between UK law and EU mechanisms, as well as private environmental governance regimes, and focuses on the pervasive and subversive impact that company law and theory has had on corporate climate activities to date.

The second section of this article explores the role of company law and theory in relation to these five carbon major entities. The third section briefly examines what environmental regulatory mechanisms require of these entities. The fourth section summarizes the activities of the five carbon major entities, the reporting of their emissions and the mechanisms they have chosen to deal with climate change, as well as the external pressures they confront, such as the sustainable investment movement. The fifth and final section examines the barriers and challenges facing carbon major entities and focuses, in particular, on the impact of corporate law and theory, as well as commercial norms, on wider climate regulatory efforts and on the activities of this select group of carbon major companies. Of course, the onus to reduce global emissions does not rest on companies alone; a comprehensive examination of global mitigation responsibilities would also need to cover the impact of supply and consumption patterns, responsibilities facing consumers of fossil fuels, and the effects of capitalism generally. Such issues are beyond the scope of this article and are potential subjects of further research.

2. COMPANY THEORY, NORMS AND LAW

The concept of regulation is a dynamic one, and there is no universal definition of the term. Black has developed a concept of 'decentred' regulation, which is 'untethered'¹¹ from the state. Her approach adopts a more complex, nuanced and transnational

¹⁰ SI 2013 No. 1970, available at: <http://www.legislation.gov.uk/ukdsi/2013/9780111540169/contents>.

¹¹ Black, n. 9 above, p. 2.

approach to regulation than the traditional state-centred approaches, in that it assumes that neither the state nor any other single actor has sufficient knowledge or oversight to resolve complex regulatory problems.¹² While the outer contours of this broader concept of regulation may be unclear, it would apply to transnational self-regulation mechanisms which are employed by the carbon major companies analyzed here. Heyvaert has developed a definition of transnational environmental law as ‘essentially law at the boundaries’,¹³ positioning it between hard law and soft governance, and the public and private spheres.¹⁴ She identifies the EU as a classic supranational institution which has developed transnational environmental law that targets private actors,¹⁵ and her approach would include market-based mechanisms such as the EU-ETS.

Regulation is a political outcome, resulting from a negotiated process. Regulation can be exploited either at its formative stage through powerful lobbying groups which can act on behalf of companies,¹⁶ or at its post-enactment stage, through lack of monitoring and enforcement. Companies such as Shell and BP have been accused of heavily influencing governments’ climate change policies.¹⁷ Regulation is often cited as a means to correct certain market failures,¹⁸ and in this case the negative externality of corporate GHG emissions. Cheffins and Reynolds note that state intervention through regulation has both efficiency justifications, and non-economic or equity justifications.¹⁹ The ‘law and economics’ movement, which has dominated corporate law theory for some time, views the company in private terms, as a nexus of contracts between private actors. These so-called ‘contractarians’, for the most part, insist that mechanisms other than corporate regulation are preferable to mediate

¹² Ibid., p. 5.

¹³ V. Heyvaert, ‘What’s in a Name? The Covenant of Mayors as Transnational Environmental Regulation’ (2013) 22(1) *Review of European, Comparative and International Environmental Law*, pp. 78–90, at 81.

¹⁴ Ibid., p. 81.

¹⁵ Ibid., p. 83.

¹⁶ R.W. Kling, ‘Building an Institutional Theory of Regulation’ (1988) 22(1) *Journal of Economic Issues*, pp. 197–209, at 202; S. Peltzman, ‘The Economic Theory of Regulation after a Decade of Deregulation’ (1989) *Brookings Papers: Microeconomics*, p. 13, available at: http://www.brookings.edu/~media/Projects/BPEA/1989-micro/1989_bpeamicro_peltzman.PDF.

¹⁷ See F. Lawrence & H. Davies, ‘Revealed: BP’s Close Ties with the UK Government’, *The Guardian*, 20 May 2015, available at: <http://www.theguardian.com/environment/2015/may/20/revealed-bps-close-ties-with-the-uk-government>; A. Neslen, ‘UK Accused of Hypocrisy over Plans to Limit Enforcement of EU Climate Goals’, *The Guardian*, 6 Jan. 2015, available at: <http://www.theguardian.com/environment/2015/jan/06/uk-accused-hypocrisy-plans-limit-enforcement-eu-climate-goals>.

¹⁸ See also Kling, n. 16 above, p. 197. However, Veljanovski cautions that viewing regulation as simply a reaction to market failure may be misleading, as both markets and governments can fail: C. Veljanovski, ‘Economic Approaches to Regulation’, in R. Baldwin, M. Cave & M. Lodge (eds), *The Oxford Handbook of Regulation* (Oxford University Press, 2010), pp. 17–36, at 19.

¹⁹ Cheffins notes that non-economic justifications should be treated with caution: B.R. Cheffins, *Company Law: Theory Structure and Operation* (Oxford University Press, 2000), pp. 126–60; see also L. Reynolds, ‘Foundations of an Institutional Theory of Regulation’ (1981) 15(3) *Journal of Economic Issues*, pp. 641–56, at 642. There is an extensive literature on judging regulation by its cost-benefit effects, which is grounded in neoclassical efficiency, on the basis of either Pareto supremacy or Kaldor-Hicks efficiency: see, e.g., W.J. Baumol, ‘On Taxation and the Control of Externalities’ (1972) 62(3) *The American Economic Review*, pp. 307–22; M.D. Adler, ‘Beyond Efficiency and Procedure: A Welfarist Theory of Regulation’ (2000) 28(1) *Florida State University Law Review*, pp. 241–338.

any negative social outcomes of corporate activities, as regulation generally constrains competitiveness and economic growth.²⁰

2.1. Conflict between Shareholder Wealth Maximization and the Climate Crisis

Law and economics theories view the firm as a privately ordered nexus of contracts, with a minimal or no role for state intervention or regulation.²¹ One of the major normative goals of the law and economics movement is to increase social welfare through the maximization of profits.²² They therefore often see transactional cost reduction and, consequentially, increased profits as the primary goal of the firm. It is unclear, however, whether this means increasing shareholder profits or the value of the firm. Shareholder primacists often conflate the two, sometimes using shareholder value as the determinant factor.²³ It is also unclear whether the focus of shareholder primacists is on long-term or short-term profitability.²⁴ Although there is some conflicting evidence, many theorists argue that shareholder primacy and the shareholder wealth maximization norm has led to a focus on short-term profits to the detriment of the long-term value of the firm.²⁵ The focus on short-term profitability is often incompatible with environmental concerns and, generally, with a concern for long-term issues that may affect society and the company, such as climate change.

The contractarian approach privileges shareholders as the primary constituents of the company to the detriment of the interests and values of other stakeholders.²⁶

²⁰ M.T. Moore, *Corporate Governance in the Shadow of the State* (Hart, 2013), p. 66; F.H. Easterbrook & D.R. Fischel, 'The Corporate Contract' (1989) 89(1) *Columbia Law Review*, pp. 1416–48, at 1418; H. Hansmann & R. Kraakman, 'The End of History for Corporate Law' (2001) 89(2) *Georgetown Law Journal*, pp. 439–68; S.M. Bainbridge, 'In Defense of the Shareholder Wealth Maximization Norm: A Reply to Professor Green' (1993) 50(4) *Washington & Lee Law Review*, pp. 1423–47; J. Armour, H. Hansmann & R. Kraakman, 'What is Corporate Law?', in R. Kraakman et al. (eds), *The Anatomy of Corporate Law: A Comparative and Functional Approach*, 2nd edn (Oxford University Press, 2009), pp. 1–34.

²¹ Moore, *ibid.*; Easterbrook & Fischel, *ibid.*; Hansmann & Kraakman, *ibid.*; Bainbridge, *ibid.*; Armour, Hansmann & Kraakman, *ibid.*

²² H.G. Manne, 'The "Higher Criticism" of the Modern Corporation' (1962) 62(3) *Columbia Law Review*, pp. 399–432; W.W. Bratton, Jr., 'The New Economic Theory of the Firm: Critical Perspectives from History' (1989) 41(6) *Stanford Law Review*, pp. 1471–527, at 1478; H.A. Simon, 'Theories of Decision-Making in Economics and Behavioural Science' (1959) 49(3) *The American Economic Review*, pp. 253–83, at 254; H. Demsetz, 'The Structure of Ownership and the Theory of the Firm' (1983) 26(2) *Journal of Law & Economics*, pp. 375–90, at 385–7; Hansmann & Kraakman, n. 20 above, p. 441; Armour, Hansmann & Kraakman, n. 20 above, p. 28.

²³ A. Keay, 'Getting to Grips with Shareholder Value Theory in Corporate Law' (2010) 39(4) *Common Law World Review*, pp. 358–78, at 371; L.A. Stout, 'Share Price as a Poor Criterion for Good Corporate Law', *Cornell Law Faculty Publications*, Paper 766, Dec. 2005, p. 5, available at: <http://scholarship.law.cornell.edu/facpub/766>.

²⁴ Keay, *ibid.*, p. 371; W.T. Allen, 'Our Schizophrenic Conception of the Business Corporation' (1992) 14(2) *Cardozo Law Review*, pp. 261–82, at 271.

²⁵ J. Grinyer, A. Russell & D. Collison, 'Evidence of Managerial Short-termism in the UK' (1998) 9(1) *British Journal of Management*, pp. 13–22, at 19; B.R. Cheffins, 'Corporate Law and Ownership Structure: A Darwinian Link?' (2002) 25(2) *University of New South Wales Law Journal*, pp. 346–78, at 361; D. Millon, 'Shareholder Social Responsibility' (2012) 36(2) *Seattle University Law Review*, pp. 911–40, at 914; J. Fisch, 'Measuring Efficiency in Corporate Law: The Role of Shareholder Primacy' (2005) 31(3) *Journal of Corporate Law*, pp. 637–74, at 638.

²⁶ W.S.W. Leung, 'The Inadequacy of Shareholder Primacy: A Proposed Corporate Regime that Recognizes Non-Shareholder Interests' (1996) 30(4) *Columbia Journal of Law & Social Problems*, pp. 587–634, at 606.

It focuses on shareholder wealth maximization as the most important function of the company, and can therefore lead to a myopic focus on short-term profitability, the economic commodification of the environment, and the encouragement of negative externalities such as GHG emissions.²⁷ It diminishes the role of public regulation and the judiciary, and reframes company law as almost an entirely default, voluntary arrangement. It diminishes the concept of the firm as an entity capable of serving a variety of interests.

The Company Law Review Steering Group reports, which led to the UK Companies Act 2006, identified strongly with a contractarian and largely economic understanding of company law.²⁸ As a result, the theory has had a strong influence on UK company law, in particular directors' duties as codified in section 172 of the Companies Act 2006.²⁹

2.2. *The UK Companies Act 2006*

UK law prior to the Companies Act 2006 did not reflect or even mandate the shareholder primacy norm. Instead, case law mostly afforded significant deference to a director's discretion, allowing directors to make the interests of the shareholders subservient to those of the company as an entity.³⁰ This 'entity approach' afforded

²⁷ K. Greenfield & D.G. Smith, 'Debate: Saving the World with Corporate Law?' (2007) 57(4) *Emory Law Journal*, pp. 947–84, at 959.

²⁸ The Company Law Review Steering Group was tasked with the review of the Companies Act, and its reports were instrumental in the framing of the Companies Act 2006: Company Law Review Steering Group, 'Modern Company Law for a Competitive Economy The Strategic Framework', Consultation Document, Feb. 1999, p. 15; S. Worthington, 'Reforming Directors Duties' (2001) 64(3) *The Modern Law Review* pp. 439–58, at 443, 447.

²⁹ A. Keay, 'Tackling the Corporate Objective: An Analysis of the United Kingdom's "Enlightened Shareholder Value Approach"' (2007) 29(4) *Sydney Law Review*, pp. 577–612; C. Villiers, 'Directors' Duties and the Company's Internal Structure under the UK Companies Act 2006: Obstacles for Sustainable Development', *University of Oslo Faculty of Law and Legal Studies Research Paper Series No. 2010-03*; A. Keay, 'Moving Towards Stakeholderism? Constituency Statutes, Enlightened Shareholder Value, and More: Much Ado About Little?' (2011) 22(1) *European Business Law Review* pp. 1–49; H. Zhang & A. Keay, 'An Analysis of Enlightened Shareholder Value in Light of Ex Post Opportunism and Incomplete Law' (2011) 8(4) *European Company and Financial Law Review*, pp. 445–75; L. Cerioni, 'The Success of the Company in s172(1) of the UK Companies Act 2006: Towards an "Enlightened Director Primacy?"' (2008) 4(1) *Original Law Review*, pp. 1–31; J. Lowry, 'The Duty of Loyalty of Company Directors: Bridging the Accountability Gap through Efficient Disclosure' (2009) 68(3) *The Cambridge Law Journal*, pp. 607–22. The English jurisdiction is also an important part of the Anglo-American tradition of company law, and has a record of innovation and export of its company law model: B.-M. Ahn, J. Halligan & S. Wilks, 'Conclusion', in B.-M. Ahn, J. Halligan & S. Wilks (eds), *Reforming Public and Corporate Governance: Management and the Market in Australia, Britain and Korea* (Edward Elgar, 2002), pp. 248–61, at 256.

³⁰ See *Hutton v. West Cork Railway Company* [1883] Ch Div 654; *Allen v. Gold Reefs of West Africa* [1900] 1 Ch 656; *Sidebottom v. Kershaw Leese and Company Ltd* [1920] Ch Div 154; *Re Smith and Fawcett Ltd* [1942] 1 Ch 304; *Re Lee Behrens* [1932] Ch 46; *Fulham Football Club v. Cabra* [1992] WL 895734 CA; D.J. Bakibinga, 'Directors' Duty to Act Bona Fides in the Interest of the Company' (1990) 39(2) *International and Comparative Law Quarterly*, pp. 451–60. The US jurisdiction relies more heavily on the business judgment rule, but it is unclear whether American jurisprudence entirely reflects the shareholder wealth maximization norm. The statement in *Dodge v. Ford Motor Co. et al.*, 204 Mich 459, 170 N.W. 668, 3 A.L.R. 43, that '[a] business corporation is organized and carried on primarily for the profit of the stockholders' is often touted as establishing shareholder wealth maximization as intrinsic in US law. However, academics have questioned whether this case establishes such a sound principle: see L. Stout, 'Why We Should Stop Teaching Dodge v Ford', *UCLA Law and Economics Research Paper Series No. 07-11*, and D.G. Smith, 'The Shareholder Primacy Norm'

directors the flexibility to consider, and even prioritize, environmental concerns over shareholder profits, if that ultimately benefited the company as a whole. Section 172 of the Companies Act 2006 marked a sharp break in this approach and encapsulated the ‘enlightened shareholder value’ theory of company law. This section established that the primary duty of the directors is to promote the success of the company for the benefit of its members, thereby codifying the shareholder primacy approach.³¹ The Act continues with a non-exhaustive list of other concerns, including the requirement that directors should consider impacts on communities and the environment. However, it is clear that under section 172 directors must consider non-shareholder concerns only when the pursuit of those interests would promote the success of the company.³²

Shareholder wealth maximization therefore undergirds UK company law requirements, and is in direct contravention with the efforts of companies to reduce emissions where those efforts are not profitable. This commercial norm, as well as legal requirements positing the shareholder as the primary constituent for corporate concern, acts as a subversive pressure on non-company law regulations, including transnational efforts to reduce corporate global emissions.

3. ENVIRONMENTAL REGULATIONS

Climate change is a complex, transboundary, and therefore global issue. Firms and other regulated entities may practise a type of ‘regulatory arbitrage’ by exploiting the differences between national regulatory environments to their advantage,³³ potentially leading to less stringent regulatory efforts at the state level. As a result, in the arena of climate change, states may be constrained not only by the costs of abatement at the domestic level but also by international competitiveness concerns of carbon leakage.³⁴ These dual concerns may constrain states when they enact specific domestic regulation on climate change.

(1997–98) 23 *Journal of Corporate Law*, pp. 277–323, at 315. *Shlensky v. Wrigley*, 237 N.E. 2d 776, established that the Wrigley company did not have to install lights to enable night baseball games, even though it would be more profitable, as the President of the Board had stated he was concerned not to negatively affect the quality of life of the surrounding neighbourhood. *Revlon Inc. v. MacAndrews & Forbes Holdings Inc.*, 506 A.2d 173, is also cited as establishing that directors must pay attention to shareholders’ profitability, but this has been narrowed to the circumstances of a takeover by the case of *Paramount v. Time Warner* (CCH) 94, 514; affd 571 A.2d 1140 (Del. 1989). In the recent case of *eBay Domestic Holdings Inc v. Craig Newmark and James Bucknester* 16 A.3d 1 (2010), a Delaware court noted: ‘Having chosen a for-profit corporate form, the craigslist directors are bound by the fiduciary duties and standards that accompany that form. Those standards include acting to promote the value of the corporation for the benefit of its stockholders’; however, this decision has also been criticized: see D.A. Wishnick, ‘Corporate Purposes in a Free Enterprise System: A Comment on eBay v Newmark’ (2012) 121 *The Yale Law Journal*, pp. 2405–20.

³¹ Companies Act 2006, s. 172(1).

³² Lowry, n. 29 above, p. 616; Keay, ‘Moving Towards Stakeholderism?’, n. 29 above, p. 29; J. Dine, ‘Corporate Regulation, Climate Change and Company Law: Challenges and Balance in an International and Global World’ (2015) 26(1) *European Business Law Review*, pp. 173–202, at 186.

³³ A.M. Sachdeva, ‘Regulatory Competition in European Company Law’ (2010) 30(2) *European Journal of Law and Economics*, pp. 137–70, at 137. However, non-governmental organizations (NGOs) can play a significant role in relation to both state and firm climate action and can mediate the regulatory arbitrage phenomenon: see Heyvaert, n. 13 above, p. 84.

³⁴ The Department for Business Innovation and Skills (BIS) estimates that carbon leakage levels could reach 41% if non-European suppliers gain competitive advantage over EU suppliers: BIS, ‘Cumulative

The UK took an innovative approach to regulating climate change through the adoption of the Climate Change Act 2008. The Act introduced a requirement for the UK government to draw up binding, nationwide carbon budgets. It triggered extensive regulatory reform, including energy market reform, to implement its share of EU reduction targets.

3.1. *The UK Climate Change Act 2008*

The aim of the Climate Change Act is to meet a target for the reduction of GHG emissions by 2050 to at least 80% lower than the 1990 baseline.³⁵ Carbon budgets must be in line with EU and international obligations,³⁶ and therefore incorporate a transnational element. So far, three carbon budgets have been established, set out in the 2009 Low Carbon Transition Plan.³⁷ While it is clear that the carbon budget up to 2020 can be achieved, the longer term target of an 80% reduction by 2050 will be more challenging to meet,³⁸ and it is ‘highly uncertain’ whether post-2020 targets can be achieved.³⁹

The Climate Change Act does have provisions which address companies directly, but only in relation to reporting requirements. Section 85 requires the Secretary of State to make regulations pursuant to section 416(4) of the Companies Act 2006, requiring directors to report such information as may be specified regarding GHG emissions from their corporate activities. Section 416(4) allows the Financial Reporting Review Panel to monitor and amend the accounts of large public and private companies. In addition, the Companies Act 2006 (Strategic Report and Directors’ Report) Regulations 2013 require mandatory reporting by public companies. However, the efficacy of the regulations on corporate activities is unclear as they do not require the use of a coherent methodology for reporting.⁴⁰ Companies may set their own targets, on the basis of either absolute reductions or intensity targets, and report on their compliance. The Department for Environment,

Impacts of Energy and Climate Change Policies on Carbon Leakage’, Feb. 2012, p. ivvv, available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/31732/12-581-cumulative-impacts-policies-on-carbon-leakage.pdf.

³⁵ Climate Change Act 2008, s. 1(1).

³⁶ *Ibid.*, s. 8. It is unclear what the impacts of ‘Brexit’ may have on UK energy and climate change targets: A. Froggatt, T. Raines & S. Tomlinson, ‘UK Unplugged? The Impacts of Brexit on Energy and Climate Policy’, Europe Programme & Energy, Environment & Resource Department, 26 May 2016, available at: <https://www.chathamhouse.org/publication/uk-unplugged-impacts-brexit-energy-and-climate-policy>.

³⁷ HM Government, ‘The UK Low Carbon Transition Plan: National Strategy for Climate and Energy’, 15 July 2009, p. 39, available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/228752/9780108508394.pdf.

³⁸ Department of Energy and Climate Change (DECC), ‘Emissions Performance Standard Impact Assessment’, July 2011, p. 2, available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/204801/eps_ia.pdf.

³⁹ Committee on Climate Change, ‘Meeting Carbon Budgets: The Need for a Step Change’, Progress Report to Parliament, 12 Oct. 2009, p. 112, available at: <https://www.theccc.org.uk/publication/meeting-carbon-budgets-the-need-for-a-step-change-1st-progress-report>.

⁴⁰ DEFRA, ‘Environmental Reporting Guidelines: Including Mandatory Greenhouse Gas Emission Reporting Guidance’, June 2013, pp. 15 and 23, available at: <http://www.gov.uk/government/publications/environmental-reporting-guidelines-including-mandatory-greenhouse-gas-emissions-reporting-guidance>, although guidance has been issued.

Food and Rural Affairs (DEFRA) has found that while many Financial Times Stock Exchange (FTSE) companies report figures on emissions or energy use, there was a lack of quantitative data compared with qualitative data.⁴¹ The regulations, therefore, have not become a significant or direct driver of emissions reductions within companies in the short term.⁴²

3.2. *The UK Energy Act 2013*

The Energy Act 2013 led to sweeping energy market reform, with the objectives of achieving secure, reasonably priced and low-carbon sources of energy for the national market. These reforms included a contract for difference (CfD) to secure minimum purchase prices through long-term investment contracts of 15 years for renewable energy, and the establishment of Emissions Performance Standards (EPS) to limit annual CO₂ emissions from new fossil fuel power stations.⁴³ The EPS acts as a regulatory backstop to effectively prevent the build of new coal-fired plants without carbon capture and storage (CCS) technology attached to them.⁴⁴ Government documents have noted that the use of CCS will allow coal and gas to continue to play a role in the energy mix in the medium term.⁴⁵ As a result, existing coal-fired power plants will be grandfathered into the EPS system until 2018 at a minimum.⁴⁶ The carbon price mechanism was not included in the Act but in national budgets, and its levels were frozen in 2014, possibly in response to political pressure to keep electricity affordable.⁴⁷ In addition, energy intensive industries are exempted from the CfD, meaning that they are not subject to any carbon price incentives to switch to renewables. This is counter-productive, as energy intensive industries are the very sectors that must move towards renewable sources in order to transition away from fossil fuels.

⁴¹ DEFRA, 'The Contribution that Reporting of Greenhouse Gas Emissions Makes to the UK Meeting its Climate Change Objectives: A Review of the Current Evidence', Nov. 2010, p. 7, available at: http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69262/pb13449-corporate-reporting-101130.pdf.

⁴² *Ibid.*, para. 49.

⁴³ The EPS effectively prevents the build of new coal-fired power plants without CCS technology: DECC, 'Ninth Statement of New Regulation: January–June 2015', Dec. 2014, p. 5, available at: <https://www.gov.uk/government/publications/decc-ninth-statement-of-new-regulation>.

⁴⁴ Clifford Chance Briefing Note, 'Energy Act Passed and EMR Delivery Plan Finalised', Dec. 2013; DECC, n. 38 above, pp. 9–10.

⁴⁵ HM Government, 'Implementing the Climate Change Act 2008: The Government's Proposal for Setting the Fourth Carbon Budget', Policy Statement, May 2011, p. 15, available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48081/1683-4th-carbon-budget-policy-statement.pdf; HM Government, 'Government Response to the Fifth Annual Progress Report for the Committee on Climate Change: Meeting the Carbon Budgets – 2013 Progress Report to Parliament', Oct. 2013, p. 6, available at: http://www.theccc.org.uk/wp-content/uploads/2013/06/CCC-Prog-Rep-Book_singles_web_1.pdf.

⁴⁶ DECC, n. 38 above, p. 32.

⁴⁷ D. Newbery, 'Reforming UK Energy Policy to Live Within its Means', Energy Policy Research Group Working Paper 1516, 3 Sept. 2015, p. 6, available at: <http://www.eprg.group.cam.ac.uk/wp-content/uploads/2015/09/1516-PDF.pdf>. This may also partly arise from the fact that benefits from lower carbon emissions are global in nature, therefore diffuse and difficult to quantify. Increased costs of renewable energy are, however, clearly national in effect.

While the UK has a comparatively long history of energy and climate change regulation, national legislation does not currently place stringent requirements directly on companies to reduce their GHG emissions. Only coal-fired plants are required to be phased out.⁴⁸ Corporate and market-based efforts are therefore the primary mechanisms used by companies in the effort to reduce GHG emissions. Backman, Verbeke and Schulz provide a useful framework to analyze resource-based climate change investments by firms, and found that while European FT500 firms make greater investments than their North American counterparts, these investments still do not trigger reductions in actual carbon footprints.⁴⁹

4. CORPORATE CLIMATE CHANGE STRATEGIES AND EFFORTS

The approaches of large companies towards climate change are of key importance, not only because they are carbon major emitters and have access to significant amounts of fossil fuel reserves and resources,⁵⁰ but also because their activities and existing technologies can determine the direction of future regulation on climate change.⁵¹ Two thirds of all anthropogenic GHG emissions result from the energy sector,⁵² and carbon major companies can be important actors in the transition to a low-carbon economy. The actions that energy companies take in relation to their GHG emissions are fundamental to global climate change efforts.

The research in this article is based on annual environmental or sustainability reports of each of the five carbon major companies, where publicly available. Also, subject to availability, CDP reports (formerly, Carbon Disclosure Project reports) were examined, together with specific corporate policies, statements or strategy papers on energy outlooks or climate change, as well as external analyses of corporate climate change policies. For some companies, reports dated back to the 1990s.⁵³ For others, a period of ten years or less is covered.⁵⁴

4.1. *The History and Evolution of the Companies' Climate Efforts*

The following paragraphs sketch a brief overview of the climate change approaches of the five carbon major companies analyzed in this article.

⁴⁸ This will be long term and is due to happen in 2025, but some closures are already taking place as a result of lower international coal prices: R. Mason, 'UK to Close All Coal Power Plants in Switch to Gas and Nuclear', *The Guardian*, 18 Nov. 2015, available at: <http://www.theguardian.com/environment/2015/nov/18/energy-policy-shift-climate-change-amber-rudd-backburner>.

⁴⁹ C.A. Backman, A. Verbeke & R.A. Schulz, 'The Drivers of Corporate Climate Change Strategies and Public Policy: A New Resource-Based View Perspective', *Business & Society*, published online before print 8 Apr. 2015, doi: 10.1177/0007650315578450, pp. 1–31, at 20, available at: <http://bas.sagepub.com/content/early/2015/04/07/0007650315578450.abstract>.

⁵⁰ Heede, n. 1 above, pp. 237–8.

⁵¹ C. Mitchell & B. Woodman, 'Regulation and Sustainable Energy Systems', in Baldwin, Cave & Lodge, n. 18 above, pp. 572–88, at 582.

⁵² International Energy Agency (IEA), 'Energy and Climate Change: World Energy Outlook Special Report', 2015, p. 20, available at: <https://www.iea.org/publications/freepublications/publication/WEO2015SpecialReportonEnergyandClimateChange.pdf>.

⁵³ E.g., Shell had reports on 'Profits versus Principles' dating back to 1998, which looked at corporate environmental issues.

⁵⁴ E.g., BG Group made available reports for the period 2006–14 only.

BP Plc

BP Plc (originally the Anglo-Persian Oil Company and then British Petroleum) is an integrated oil and gas company which has been operating in the UK from the early 1900s. It currently employs over 85,000 people worldwide, mainly in Europe and the United States (US). Lord John Browne was the Chairman from 1995 to 2007 and spearheaded BP's environmental marketing campaign in the 1990s, which centred around the advertising campaign 'Beyond Petroleum'. Until the mid-1990s, many of the 'big carbon' entities such as utilities, coal, oil, and gas companies denied the science around climate change and opposed government controls on GHG emissions, largely through the Global Climate Coalition.⁵⁵ Lord Browne was the first member of the Coalition to break with this approach in 1997. Under his leadership, the company launched a GHG emissions reduction target and an internal carbon trading scheme in 1998. In 2005, the company made a commitment to invest US\$8 billion in renewable energy by 2015. The target was met by 2013. Tony Hayward succeeded Lord Browne as Chairman in 2007.⁵⁶ Hayward distanced the company from the environmental advertising campaign in order to focus on the core business of oil distribution and extraction, and pursued a short-term, bottom-line approach.⁵⁷ Under his leadership, the GHG emissions reduction and the renewable energy investment targets expired. To date, neither have been renewed.⁵⁸

Royal Dutch Shell Plc

Royal Dutch Shell Plc,⁵⁹ the parent of a global group of energy and petrochemical companies which employs more than 92,000 people in over 70 countries,⁶⁰ acknowledges the global challenge that climate change poses, and followed BP Plc's departure from the Global Climate Coalition in 1998.⁶¹ The company has expanded rapidly into natural gas operations, which now make up half of Shell's total global production.⁶²

⁵⁵ D.G. Victor & J.C. House, 'BP's Emission Trading System' (2006) 34(15) *Energy Policy*, pp. 2100–2112, at 2101.

⁵⁶ Tony Hayward was replaced by Robert Dudley in 2010.

⁵⁷ M.A. Cherry and J.F. Sneirson, 'Beyond Profit: Rethinking Corporate Social Responsibility and Greenwashing after the BP Oil Disaster' (2011) 85(4) *Tulane Law Review*, pp. 983–1038, at 1009.

⁵⁸ While locating climate change initiatives at a high level within the company is indicative of the success of these endeavours (see Backman, Verbeke & Schulz, n. 49 above, p. 10), simply changing a chairman may not be sufficient to combat the pressures of company law and commercial norms.

⁵⁹ This parent company was registered in England in 2004 and its headquarters are based in the Netherlands. It was formed by combining the original two parent companies of Royal Dutch Petroleum Company and Shell Transport and Trading Plc.

⁶⁰ Royal Dutch Shell Plc, 'Sustainability Report 2013', p. 1, available at: <http://reports.shell.com/sustainability-report/2013/servicepages/welcome.html>.

⁶¹ I.A. Saeverud & J.B. Skjoereth, 'Oil Companies and Climate Change: Inconsistencies between Strategy Formulation and Implementation?' (2007) 7(3) *Global Environmental Politics*, pp. 42–62, at 49.

⁶² Royal Dutch Shell Plc, 'Sustainability Report 2014', p. 25, available at: <http://reports.shell.com/sustainability-report/2014/servicepages/welcome.html>. Royal Dutch Shell made a bid to acquire BG Group and the acquisition was completed in early 2016.

Shell's leadership has not been as vocal on its environmental credentials as Lord Browne was at BP, perhaps because Shell has a more complex corporate structure and follows a more collective decision-making process.⁶³ As a result, responsibility for climate change remains more diffused. In the mid-1990s, the company faced strong criticism over its decision to sink the Brent Spar storage tanker in the North Sea, and over its operations in Nigeria following the execution of human rights leader Ken Saro-Wiwo.⁶⁴ Consequently, the company focused its efforts on CSR initiatives.⁶⁵

BG Group Plc

BG Group Plc is a smaller company, but is still considered one of the 'big six' oil and gas companies. It employs over 6,000 people worldwide. Exploration and production make up the core of its business, and it has production sites in the UK and worldwide. The company's initial production sites were located in the UK and Europe, but BG Group has been expanding its operations overseas to explore new shale and coal seam gas fields, particularly in the US and Australia.⁶⁶ The company acknowledges both the risks of climate change to its business operations and its direct contribution to climate change. However, corporate documents consistently stress the lower carbon emissions of natural gas than of coal or oil, and the flexibility of natural gas and liquefied natural gas (LNG) as a base load energy supplier to complement the intermittency of renewable energy.⁶⁷ There is no general mention of the carbon intensity required to access shale gas fields, which are extraction areas on which the company is currently focusing. BG Group was acquired by Royal Dutch Shell in early 2016.⁶⁸

National Grid Plc

National Grid Plc is an international electricity and gas company based in the UK and the north-eastern US. The company employs over 23,000 people.⁶⁹ It is also the systems operator of Great Britain's electricity system and its networks distribute gas to over 11 million homes and businesses in the jurisdiction. The company has been appointed as the delivery body for energy market reform (EMR). In this role, it administrates the capacity market and CfD schemes on behalf of the UK Department of Energy and Climate Change (DECC) and provides analyses of these schemes to decision makers.

⁶³ J.G. Frynas, 'Royal Dutch/Shell' (2003) 8(2) *New Political Economy*, pp. 275–85, at 276–7.

⁶⁴ *Ibid.*, pp. 282–3.

⁶⁵ *Ibid.*, pp. 281–2.

⁶⁶ BG Group Plc, 'Corporate Responsibility Report 2006', p. 1, available at: <http://www.bg-group.com/~tiles/?tiletype=report&id=440>.

⁶⁷ BG Group Plc, 'Sustainability Performance Report 2010', p. 25, available at: http://www.bg-group.com/assets/files/cms/2010_Sustainability_Performance_Report.pdf; BG Group Plc, 'Sustainability Report 2011', p. 31, available at: http://www.bg-group.com/assets/files/cms/38919_BG_SR_2011_Performance_030412_NO.PDF; BG Group Plc, 'Climate Change Public Position', 2012, p. 1, available at: http://www.bg-group.com/assets/files/cms/BG_ClimateChangePublicPosition.pdf.

⁶⁸ The acquisition was completed on 16 Apr. 2016, but company reports will not be merged until 2017.

⁶⁹ National Grid Plc, '2014 Sustainability Report – Connections that Matter: How We Behave as a Responsible Business', p. 9, available at: <http://www2.nationalgrid.com/responsibility>.

Centrica Plc

Centrica Plc is Britain's largest energy supplier, operating in the UK as British Gas. It stores gas through Centrica Storage.⁷⁰ The company considers itself to play a pivotal role in tackling climate change by varying both how energy is generated and how it is consumed. Centrica acknowledges the risks that climate change may entail for its physical assets, which include coastal nuclear power stations.⁷¹ The company emphasizes trust and its reputation in relation to climate change.⁷² Centrica established a strategic priority of providing energy for a low-carbon world,⁷³ and plans to achieve this strategic priority by assisting its customers in cutting their emissions, investing in low-carbon sources of energy and reducing their own carbon footprint.⁷⁴ The company claims to focus on the energy 'trilemma': how to achieve energy security, affordability, and reduced GHG emissions.⁷⁵ As a result, it acknowledges that any commitments to climate change abatement must be balanced against the other two competing priorities.

4.2. Reporting of Emissions

All energy companies reviewed report their GHG emissions, although in varying levels of detail. Three companies (BG Group, National Grid, Centrica) have formal commitments to reduce their GHG emissions. The regulations, therefore, have set a minimum floor for compliance for these companies.

The UK Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013 require publicly traded companies to report their GHG emissions, a requirement with which all five energy companies under review comply. The regulations do not require a specific or coherent format of reporting, which makes it difficult to compare emissions both within the same company over time, and between companies. The regulations require reporting of Scope 1 and 2 emissions, but only recommend the reporting of Scope 3 emissions. Consequently, some companies report Scope 1 and 2 emissions only. Most importantly, the regulations do not require that companies reduce their GHG emissions, only that they report them. As a result, companies may voluntarily set their own targets on the basis of absolute reductions or intensity targets, and report on their own compliance. Three out of the five companies analyzed have set GHG emissions reduction targets (BG Group, National Grid, Centrica). Two of the three sets of targets are intensity, rather than absolute, reduction targets.

⁷⁰ Centrica Plc, 'CDP 2010 Investor CDP Information Request', p. 1, available at: https://www.centrica.com/sites/default/files/responsibility/centcr09_disclosure2010.pdf.

⁷¹ Centrica Plc, 'CDP 2009 Investor CDP Information Request', p. 18, available at: https://www.centrica.com/sites/default/files/responsibility/centcr09_cdp.pdf.

⁷² *Ibid.*, p. 1; Centrica Plc, n. 70 above, p. 21.

⁷³ Centrica Plc, n. 70 above, p. 1.

⁷⁴ *Ibid.*, pp. 1–2.

⁷⁵ Centrica Plc, 'CDP 2013 Investor CDP Information Request', p. 1, available at: https://www.centrica.com/sites/default/files/responsibility/centcr13_disclosure2013.pdf. This mirrors the UK government's approach to energy and climate change, and could mirror the triple bottom-line approach.

Table 1 Summary of Emissions Reporting

Company Name	Date Reporting Emissions Began	Scope 1, 2 or 3	Absolute or Intensity-Based Emissions Targets
BP Plc	2002	1, 2 and 3	Absolute targets 1998–2010 None since 2010
Royal Dutch Shell Plc	1997	1 and 2 regularly	Absolute targets 1999–2010 None since 2010
BG Group Plc	2006	1, 2 and 3	Absolute targets 2007–2012 From 2012 intensity-based targets of 8% reduction in GHGs per barrel of oil for upstream activities; 15% reduction per barrel of oil for natural gas liquefaction activities
National Grid Plc	Unclear	Scope 1 and 'indirect' emissions	Absolute targets to 2020 and 2050 but subject to long-term national energy scenarios dependent upon government policies, so targets unstable
Centrica Plc	2006	1, 2 and 3	Absolute targets 2010–2015 but unclear if renewed post-2015 Intensity-based up to 2020 of 200 g CO ₂ /kWh

With the exception of National Grid, no company has currently established absolute GHG emissions reduction targets. While BP did establish such targets in 1998, they were not renewed after 2010 as they were deemed to be 'no longer practical and useful in driving emissions reductions at the plant and operational level'.⁷⁶ BG Group also established absolute targets in 2007, but decided not to renew them on the ground that the business was anticipated to grow substantially in the next five years. It can be assumed that the company did not want emissions targets to constrain growth.

4.3. Participation in Market Mechanisms

The EU ETS is the largest regional carbon trading mechanism, and was motivated by the emissions trading mechanism in the Kyoto Protocol.⁷⁷ The scheme aims to internalize the social cost of GHG emissions so that market prices reflect their actual cost. In turn, this is designed to incentivize investment in low-carbon technologies and therefore lead to a low-carbon society in the EU by 2050.⁷⁸ The scheme covers approximately 11,500 power stations and half of the EU's CO₂ emissions.⁷⁹

⁷⁶ Ibid., para. 3-1c.

⁷⁷ Kyoto Protocol to the United Nations Framework Convention on Climate Change (UNFCCC), Kyoto (Japan), 11 Dec. 1997, in force 16 Feb. 2005, available at: http://unfccc.int/kyoto_protocol/items/2830.php; F.J. Convery, 'Origins and Development of the EU ETS' (2009) 43(3) *Environmental & Resource Economics*, pp. 391–412, at 392.

⁷⁸ PBL Netherlands Environment Assessment Agency, 'Evaluation of Policy Options to Reform the EU Emissions Trading Scheme: Effects on Carbon Price, Environment and the Economy', 2013, pp. 1–72, at 8.

⁷⁹ T. Gilbertson & O. Reyes, 'Carbon Trading: How it Works and Why It Fails', Carbon Trade Watch, *Critical Currents* No. 7, Nov. 2009, p. 32, available at: <http://www.carbontradewatch.org/publications/carbon-trading-how-it-works-and-why-it-fails.html>.

Table 2 Summary of Corporate Emissions Trading Activities

Company Name	Internal Trading Scheme	Shadow Price on Carbon	Participation in EU-ETS
BP Plc	1997–2002	Yes, \$40 per tonne	Yes In 2012 held approximately 11,892,505 allowances
Royal Dutch Shell Plc	1999–2002	Yes, \$40 per tonne	Yes, but no detail on allowances held
BG Group Plc	None	Not clear	Yes, but no detail on allowances
National Grid Plc	None	Not clear	Not clear
Centrica Plc	None	Not clear	Not clear

When the EU ETS was designed, it assumed an upward trajectory of emissions which was reflected in the initial supply of permits on the market. The recession of 2008–09 led to a reduced demand for allowances.⁸⁰ In addition, at the end of the second trading period from 2008 to 2012, there were leftover permits available to be banked in the third trading period (2013–20).⁸¹ This created an oversupply of permits available in the market, causing the price of carbon permits to crash. It is anticipated that the price of carbon will remain below €10 per tonne of CO₂ equivalent (tCO₂e) until the end of the third trading period concluding in 2020.⁸²

Three of the five companies analyzed participate in the EU ETS and are members of the UK Emissions Trading Group, an industry-led association which informs and represents companies subject to the EU ETS.⁸³ However, there is a general lack of transparency within this mechanism; it is difficult to determine how many permits each company has acquired, and how many tonnes of GHG emissions this has allowed them to emit.

Six of the major oil and gas companies issued an open letter to the Executive Secretary of the United Nations Framework Convention on Climate Change (UNFCCC)⁸⁴ and the President of the 21st Conference of the Parties (COP-21) on 29 May 2015. The Chairmen of BP, Royal Dutch Shell and BG Group were signatories. The companies stated that they required clear, stable, long-term ambitious policy frameworks, preferably global in nature, in order for their companies to do more on climate change. In particular, they called for a price on carbon and the option to eventually connect national trading systems with an international system.⁸⁵ These companies cite a clear preference for market

⁸⁰ Committee on Climate Change, n. 39 above, p. 59.

⁸¹ PBL, n. 78 above, p. 14.

⁸² *Ibid.*, p. 10. While the EU has agreed to include a stability mechanism in the EU ETS in the future, it is unclear whether this will remedy the existing weaknesses of the mechanism.

⁸³ The UK Emissions Trading Group, 'Welcome to ETG', available at: <http://www.etg.uk.com>.

⁸⁴ New York, NY (US), 9 May 1992, in force 21 Mar. 1994, available at: <http://unfccc.int>.

⁸⁵ UN Climate Change Newsroom, 'Six Oil Majors Say "We Will Act Faster with Stronger Carbon Pricing": Open Letter to UN and Governments', 1 June 2015, available at: <http://newsroom.unfccc.int/unfccc-newsroom/major-oil-companies-letter-to-un>.

mechanisms through a pricing and trading scheme in order to be incentivized to reduce their GHG emissions.

The lack of ambition in emissions targets at both the international and European level, coupled with the free allowances of permits, has led to an over-supply of permits which has kept the price of carbon below a level that would incentivize businesses to make emissions reductions. While pressure from non-governmental organizations (NGOs) can sustain some level of corporate engagement in carbon trading, the carbon markets on their own, as a result, have largely failed to ensure GHG emissions reductions.⁸⁶ Market mechanisms included in both the Kyoto Protocol and EU ETS have been largely unsuccessful to date in stabilizing GHG emissions and ensuring significant emissions cuts by companies.⁸⁷

4.4. *Use of Corporate Social Responsibility and Other Voluntary Mechanisms*

Corporate social responsibility (CSR) constitutes a business-initiated response to perceived shareholder exclusivity, and attempts to align profits with socially responsible behaviour.⁸⁸ CSR is often referred to as providing companies with the ‘social licence to operate’.⁸⁹ It is derived from the stakeholder approach to the corporate objective⁹⁰ and the sustainable development agenda.⁹¹ Kagan, Thornton and Gunningham note that some companies operate beyond the requirements of regulation as a result of the confluence of pressures of various licences.⁹² These include the licence to operate (consisting of shareholder return requirements as well as social harm), the regulatory licence (consisting of regulatory compliance requirements), and the social licence (consisting of various stakeholder pressures on the company).⁹³ Often, only the regulatory and social licences will demand emissions reductions from companies,⁹⁴ and these efforts will be constrained by economic concerns if management recommends non-incremental activities.⁹⁵

⁸⁶ S. Seppanen et al., ‘Demand in a Fragmented Global Carbon Market: Outlook and Policy Options’, Mar. 2013, p. 44, available at: <http://www.diva-portal.org/smash/get/diva2:702582/FULLTEXT01.pdf>.

⁸⁷ W. Catton, ‘Dynamic Carbon Caps: Splitting the Bill – A Fairer Solution Post-Kyoto?’ (2009) 37(12) *Energy Policy*, pp. 5636–49, at 5636.

⁸⁸ L. Polishchuk, ‘Corporate Social Responsibility or Government Regulation: An Analysis of Institutional Choice’ (2009) 52(8) *Problems of Economic Transition*, pp. 73–94, at 76.

⁸⁹ D. Pesmatzoglou et al., ‘Extractive Multinationals and Corporate Social Responsibility: A Commitment Towards Achieving the Goals of Sustainable Development or Only as a Management Strategy?’ (2014) 26(2) *Journal of International Development*, pp. 187–206, at 189.

⁹⁰ P. Utting & J.C. Marques, ‘Introduction: The Intellectual Crisis of CSR’, in P. Utting & J.C. Marques (eds), *Corporate Social Responsibility and Regulatory Governance Towards Inclusive Development?* (UN Research Institute for Social Development, 2010), pp. 1–25, at 3; P. Ireland & R.G. Pillar, ‘Corporate Social Responsibility in a Neoliberal Age’, in Utting & Marques, *ibid.*, pp. 77–104, at 84; A. Keay, ‘Stakeholder Theory in Corporate Law: Has It Got What It Takes?’ (2010) 9(3) *Richmond Journal of Global Law & Business*, pp. 249–300, at 252.

⁹¹ Pesmatzoglou et al., n. 89 above, at 192.

⁹² R.A. Kagan, D. Thornton & N. Gunningham, ‘Explaining Corporate Environmental Performance: How Does Regulation Matter?’ (2003) 37(1) *Law & Society Review*, pp. 51–90, at 76.

⁹³ *Ibid.*, p. 77.

⁹⁴ *Ibid.*, p. 78.

⁹⁵ *Ibid.*, p. 68.

All five companies positioned GHG emissions reductions at the parent level within some sort of CSR administrative grouping or approach. At Centrica, the board-level Corporate Responsibility Committee analyzes the group's environmental risks. BG Group's approach to climate change is incorporated in its 'Business Principles', which set out the group's core standard of ethical conduct, and the company's responsibility to people and the environment. Royal Dutch Shell positions its 'core values' of honesty, respect and integrity as the basis of its eight 'General Business Principles' (which include health, safety, and the environment).⁹⁶ The group's Corporate & Social Responsibility Committee was formed in 2005 and monitors the group's adherence to its business principles.

In addition, a number of the companies reviewed mentioned their social and operational licences in their annual reports. Centrica was concerned that damage to its reputation as a low-carbon supplier of energy would impact on its social licence to operate.⁹⁷ BP noted that its licence to operate was earned through real benefits delivered to the communities in which it operates.⁹⁸ Shell positioned its ability to grasp the challenge and opportunities of climate change as integral to its 'licence to grow'.⁹⁹ When BG Group's GHG emissions rose in 2013, it put in place a 'Licence to Operate' scheme in order to satisfy its stakeholders,¹⁰⁰ although the scheme did not include concrete absolute GHG emissions reduction pledges.

All of the companies analyzed are members of the UN Global Compact (UNGC); however, very few documents were created to demonstrate their compliance with the UNGC principles, and it was not clear to which of the principles they subscribed. Most companies merely provided links to their existing sustainability reports and their CDP Information Requests, where available. The UNGC does not, therefore, currently require companies to do anything more than employ existing, business-as-usual, voluntary initiatives.

Most of the companies reviewed do report their GHG emissions under the CDP initiative. BG Group, however, was the only energy company to be listed in the CDP Carbon Performance Leadership Index.¹⁰¹ BG Group's documents have been in compliance with the Global Reporting Initiative (GRI) guidelines¹⁰² since 2008,¹⁰³ and 90% of BP's emissions were verified by the International Standard on Assurance Engagements (ISAE3000) of the International Auditing and Assurance Standards

⁹⁶ Royal Dutch Shell Plc., n. 62 above, p. 7.

⁹⁷ Centrica Plc., n. 70 above, p. 11.

⁹⁸ BP Plc, 'Sustainability Report 2014', p. 2, available at: http://www.bp.com/content/dam/bp/pdf/sustainability/group-reports/Sustainability_Report_2014.pdf.

⁹⁹ The Shell Report 2001, 'People, Planet and Profits', p. 2, available at: http://reports.shell.com/sustainability-report/2012/servicepages/previous/files/shell_report_2001.pdf.

¹⁰⁰ BG Group Plc, 'Sustainability Report 2013', p. 5, available at: http://www.bg-group.com/assets/files/cms/BG_SR_2013_2.pdf.

¹⁰¹ Available at: <https://www.cdp.net/en-US/Pages/events/2015/climate/Global-Climate-Change-Release-2015.aspx>.

¹⁰² Available at: <https://www.globalreporting.org>.

¹⁰³ BG Group Plc, n. 66 above, p. 1.

Board (IAASB)¹⁰⁴ (a CDP project). Royal Dutch Shell and National Grid take into account the ISO 14001 norm of the International Organization for Standardization (ISO);¹⁰⁵ Centrica subscribes to the GHG Protocol developed by the World Resources Institute (WRI) and the World Business Council on Sustainable Development (WBCSD),¹⁰⁶ and to the GRI Sustainability Reporting Guidelines.¹⁰⁷

Several companies have either signed up to or formed new voluntary initiatives such as the World Bank initiative, Zero Routine Flaring by 2030,¹⁰⁸ or the Oil and Gas Climate Initiative launched by the UN Secretary General in September 2014, which provides an industry-driven platform for companies to voluntarily share technical solutions to climate change.¹⁰⁹ Despite these recent initiatives, and the emphasis that the analyzed companies place on the importance of CSR, it remains a voluntary mechanism to address environmental damage, including GHG emissions. Any responsibilities under CSR are ethical and non-binding.

4.5. *The Sustainable Investment Movement*

The sustainable investment movement has developed largely as a result of an increased appreciation by investors of the risks of climate change. It was born out of the socially responsible investment (SRI) movement, which includes both ethical and economic value considerations.¹¹⁰ A number of definitions of sustainable investment have emerged.¹¹¹ The European Sustainable Investment Forum (EUROSIF) defines sustainable investment as ‘any type of investment process that combines investors’ financial objectives with their concerns about environmental, social and governance (ESG) issues’.¹¹² Institutional investors can adopt a variety of sustainable investment strategies, such as including ESG factors in the investment process, as well as shareholder activism through the use of shareholder resolutions, and engagement with management.¹¹³ Passive investment strategies could involve screening potential

¹⁰⁴ Available at: <http://www.isac3000.com>.

¹⁰⁵ Available at: <http://www.iso.org/iso/iso14000>.

¹⁰⁶ ‘The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard’, available at: <http://www.ghgprotocol.org>.

¹⁰⁷ N. 102 above.

¹⁰⁸ Available at: <http://www.worldbank.org/en/programs/zero-routine-flaring-by-2030>.

¹⁰⁹ Available at: <http://www.oilandgasclimateinitiative.com>.

¹¹⁰ Kiernan notes that SRI is based on values first and financial stability second, while sustainable investing focuses on risk and return: M.J. Kiernan, ‘SRI or Not SRI’, in A.A. Calvello & P. Watchman (eds), *Environmental Alpha: Institutional Investors and Climate Change* (John Wiley & Sons, 2010), pp. 125–44, at 131–2.

¹¹¹ M. Voorhes & J. Humphreys, ‘Recent Trends in Sustainable and Responsible Investing in the United States’ (2011) 20(3) *The Journal of Investing*, pp. 90–4, at 91. Kiernan notes that sustainable investing differs from socially responsible investing which is only values-based, whereas sustainable investing focuses on investment risk and return: Kiernan, *ibid.*, p. 131–2.

¹¹² EUROSIF, ‘European SRI Study 2014’, p. 8, available at: <http://www.eurosif.org/publication/view/european-sri-study-2014>.

¹¹³ M. Staub-Bisang, *Sustainable Investing for Institutional Investors: Risks, Regulation and Strategies* (John Wiley & Sons, 2012), p. 15; R. Sullivan & A. Gouldson, ‘Does Voluntary Carbon Reporting Meet Investors’ Needs?’ (2010) 36 *Journal of Cleaner Production*, pp. 60–7, at 61.

investments for ESG factors.¹¹⁴ The three main actions investors take on ESG issues include shareholder resolutions, mandated disclosures through public listing agencies, and voluntary disclosure initiatives.¹¹⁵ A number of institutional investors are taking the lead in mainstreaming these initiatives. Together, they constitute a transnational network that attempts to re-orient the behaviour of investors and companies regarding climate change.¹¹⁶

A significant risk facing investors in fossil fuel companies is that of ‘stranded assets’. Fossil fuel reserves could become stranded as a result of regulation, carbon pricing and the transition to renewable energy. Investors in these companies have become rightly concerned about the issue of stranded assets and consequential impacts on the value of their investments. Investors, through shareholder resolutions, have begun to systematically request increased disclosure from fossil fuel companies regarding the underlying value of the assets of these companies in the context of climate change, including fossil fuel reserves. Shareholder resolutions posed at the 2015 annual general meetings of both BP and Royal Dutch Shell were adopted with almost unanimous support from their shareholders. The resolutions requested more details of climate risk disclosure, including asset portfolio resistance benchmarked against the International Energy Agency (IEA) energy scenarios.¹¹⁷ Despite these developments, carbon major entities are resistant to the idea of stranded assets. Ben van Beurden, the CEO of Royal Dutch Shell, stated in the company’s response to the 2015 shareholder resolution:

Our view is that the stranded assets theory ignores the realities of our industry and it risks distraction from the real issues around energy transition needs. ... If there is no further investment in oil production, the gap between supply and demand could be 70 million barrels per day by 2040.¹¹⁸

While the SRI and sustainable investment movement has grown tremendously, and the divestment campaign has increased awareness of the role of investors in climate change, the levels of ambition in the movement vary. It has not currently delivered any revolutionary change within the financial sector,¹¹⁹ although the movement does demonstrate that a large number of institutional investors are taking climate change seriously. If the movement leads to general market-based recognition of the risks of continued investment in fossil fuel companies,¹²⁰ it has the potential to tackle the

¹¹⁴ Staub-Bisang, *ibid.*, p. 143.

¹¹⁵ M.S. Lubber, ‘Risks and Their Impacts on Institutional Investors’, in Calvello & Watchman, n. 110 above, pp. 79–99, at 88.

¹¹⁶ E.g. CDP, Ceres, the Investor Network on Climate Risk, Institutional Investor Group on Climate Change, Arjuna Capital, Reap What You Sow, and Ambition A.

¹¹⁷ IEA, ‘World Energy Model’, available at: <http://www.worldenergyoutlook.org/weomodel>.

¹¹⁸ J. Oilila & B. van Beurden, ‘2015 Royal Dutch Shell Plc: Annual General Meeting’, 19 May 2015, p. 8, available at: <http://www.shell.com/investors/retail-shareholder-information/annual-general-meeting.html>.

¹¹⁹ B.J. Richardson, ‘Financial Markets and Socially Responsible Investing’, in B. Sjøfjell & B.J. Richardson (eds), *Company Law and Sustainability: Legal Barriers and Opportunities* (Cambridge University Press, 2015), pp. 226–73, at 226.

¹²⁰ N. Schneider, ‘Revisiting Divestment’ (2015) 66(2) *Hastings Law Journal*, pp. 589–617, at 592.

commercial barriers of shareholder wealth maximization which currently impede more aggressive corporate action on climate change.

5. BARRIERS AND CHALLENGES

An examination of national and transnational mechanisms and initiatives reveals the various levels of regulatory requirements to which carbon major entities are subjected. Their activities reveal their preference for largely voluntary initiatives and market-based mechanisms, and in doing so reveal the limitations of existing regulations.

5.1. *Limits of Regulation*

Despite the progressive nature of legislative efforts in the UK jurisdiction through the Climate Change Act 2008, the Energy Act 2013, and the Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013, a closer examination reveals their limitations. The Climate Change Act has no provisions which directly mandate the reduction of GHG emissions from carbon major companies. The EPS in the Energy Act 2013 requires only that coal-fired plants be phased out, and exempts energy intensive industries from the CfD. The Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013 contain no requirement for a specific or coherent format of reporting, and do not require emissions reductions from companies.

5.2. *Constraints of Trading Mechanisms*

The EU ETS appears to be the most used mechanism to date by the companies examined, but as a result of system design, and perhaps inherent problems with market mechanisms,¹²¹ the EU ETS has not been effective in spurring on low-carbon innovation.¹²² There is also a general lack of transparency in the system in that it is difficult to determine how many permits each company has actually acquired, and what impact, if any, the purchase of the permits has had on their GHG emissions. Three of the five companies examined have advocated strongly for a price on carbon instead of regulatory mechanisms requiring a reduction of GHG emissions. While two of the companies examined apply a shadow price on carbon, this policy has not detracted from initiatives by these same companies to access hard-to-reach, and more expensive oil and gas reserves such as shale oil and gas seams. An informal carbon price, therefore, currently does not appear to effectively disincentivize carbon major companies from expanding their production to high-emitting resources.

¹²¹ PBL, n. 78 above, p. 6.

¹²² R. Caelé & A. Dechezleprêtre, 'Environmental Policy and Directed Technological Change: Evidence from the European Carbon Market', Centre for Climate Change Economics and Policy and Grantham Research Institute on Climate Change and the Environment Working Paper, Mar. 2012, p. 3, available at: [http://personal.lse.ac.uk/caele/Cale%20and%20Dechezleprepre%20\(2012\).pdf](http://personal.lse.ac.uk/caele/Cale%20and%20Dechezleprepre%20(2012).pdf).

5.3. *Inadequacy of Voluntary Measures*

Both the UNGC and the CDP reporting format seem to be very popular with the companies examined. The UNGC does not require companies to do anything more than employ existing voluntary initiatives. The CDP is a private, voluntary initiative which encourages more detailed disclosure of GHG emissions, and may have prepared the companies for compliance with the Companies Act 2006 (Strategic Report and Directors' Report) Regulations 2013. The CDP initiative does not, however, require companies to reduce their GHG emissions.

All companies analyzed employ CSR initiatives in one form or another. Many have a CSR committee to analyze environmental risks and activities. It is difficult to quantify the output of CSR and compliance with voluntary codes, or their contribution to sustainable development and environmental goals.¹²³ Voluntary mechanisms often lack coherence, and can be manipulated by companies by choosing their own baselines and methodologies for monitoring and enforcement.¹²⁴ This criticism of CSR is borne out by the examination of the companies analyzed. When reporting increases in GHG emissions, a number of companies referred to some type of CSR licence as a potential tool to address the problem, but failed to identify how, if at all, this CSR initiative would contribute to actual reductions in GHG emissions. There seems to be no concrete connection between CSR initiatives and activities which might direct, or cause, GHG reductions.

5.4. *General Trends*

None of the companies reviewed are subject to regulatory requirements to reduce their GHG emissions; nor do any currently have absolute GHG emissions reduction targets except for National Grid, but those commitments are unclear. The main regulatory tool to which the companies are subject and which may motivate reductions in GHG emissions, is the EU ETS, but there is a general lack of transparency on their level of participation and levels of credits and transfers obtained. It appears that most carbon major companies view formal regulatory action to reduce emissions as a risk to their business and prefer the market mechanism of pricing carbon over stringent regulatory action.

Instead of emissions reductions, the companies (with the exception of National Grid) appear to prefer voluntary initiatives, including reporting initiatives such as the CDP. While many of the companies have experimented with voluntary targets, and in the case of BP with a trading scheme, cost and growth constraints take precedence. Companies appear to rely heavily on energy efficiency measures which are deemed to be cost-effective, and invest in research and technology to capture existing emissions. BG Group has created technology hubs for carbon management, and focuses heavily on CCS;¹²⁵ Royal Dutch Shell supports the future use of CCS.¹²⁶

¹²³ Pesmatzoglou at al., n. 89 above, p. 198.

¹²⁴ I. Rosen-Zvi, 'You Are Too Soft!: What Can Corporate Social Responsibility Do for Climate Change?' (2011) 12(2) *Minnesota Journal of Law, Science & Technology*, pp. 527–70, at 551.

¹²⁵ BG Group Plc, n. 66 above, p. 32.

¹²⁶ Royal Dutch Shell Plc, n. 60 above, p. 16.

The trend towards sustainable investment does give cause for hope. Institutional investors are increasingly worried about the potential of stranded assets, and some shareholder resolutions and certain management engagement strategies have successfully put pressure on carbon majors to increase disclosure. The new Task Force on Climate-Related Financial Disclosures advocates a more coherent approach by companies on climate risks and consequential disclosures, and may provide new incentives to investors to take action on climate change.¹²⁷

5.5. *Influence of Company Law, Company Theory and the Shareholder Wealth Maximization Norm*

The approach of the five carbon major companies towards climate change bears out the influence of company law, company theory and the shareholder wealth maximization norm. The companies see their oil and gas resources as a necessary and significant part of the energy future for several decades to come,¹²⁸ even though they acknowledge that they are tapping mature fields, accessing hard-to-reach hydrocarbons, and engaging with the controversial shale gas industry. While natural gas is generally considered to be a useful bridge to a low-carbon future, experts have stated that its use should decline between 2020 and 2030.¹²⁹ However, many carbon majors view natural gas as a destination, rather than merely a bridging, fuel. BP estimates that fossil fuels will make up two-thirds of the energy mix by 2035,¹³⁰ and Royal Dutch Shell estimates that fossil fuels could still meet 65% of global energy demand by 2050.¹³¹ The acquisition by Shell of BG Group was opposed by shareholder pressure group Follow This on the basis that Shell was acquiring ‘stranded assets’ through its purchase of a natural gas company.¹³² Many companies did not agree with the position that their reserves may become ‘stranded assets’ if we are to meet the global goal of well below 2°C set out in the Paris Agreement.¹³³

Without having GHG emissions reduction targets or providing a long-term vision on climate change, carbon majors are not planning to divest from fossil fuel

¹²⁷ Task Force on Climate-Related Financial Disclosures, ‘Phase I Report of the Task Force on Climate-Related Financial Disclosures’, 31 Mar. 2016, available at: <https://www.fsb-tcfd.org/publications>.

¹²⁸ BP Plc, ‘Sustainability Review 2013’, p. 13, available at: http://www.bp.com/en/global/corporate/sustainability/about-our-reporting/sustainability_report_downloads/report-library.html; BG Group Plc, ‘Climate Change Public Position’, 2012, p. 1, available at: http://www.bg-group.com/assets/files/cms/BG_ClimateChangePublicPosition.pdf.

¹²⁹ See, e.g., UK Energy Research Centre, ‘Gas Can Be a Bridge to a Low-Carbon Future’, 12 Nov. 2014, available at: <http://www.ukerc.ac.uk/news/gas-can-be-a-bridge-to-a-low-carbon-future.html>.

¹³⁰ BP Plc, ‘BP Energy Outlook 2035’, Feb. 2015, p. 5, available at: http://www.bp.com/content/dam/bp/pdf/Energy-economics/energy-outlook-2015/Energy_Outlook_2035_booklet.pdf.

¹³¹ Royal Dutch Shell Plc, ‘Sustainability Report 2011’, p. 6, available at: <http://reports.shell.com/sustainability-report/2011/servicepages/welcome.html>.

¹³² Follow This, ‘Follow This Votes Against Shell’s Acquisition of the BG Group’, 26 Jan. 2016, available at: <https://www.follow-this.org/en/vision/follow-this-votes-against-shells-acquisition-of-the-bg-group>.

¹³³ Paris (France), 13 Dec. 2015, not yet in force (in UNFCCC Secretariat, ‘Report of the Conference of the Parties on its Twenty-First Session’, Addendum, UN Doc. FCCC/CP/2015/10/Add.1, 29 Jan. 2016); BP Plc, n. 98 above, p. 16; Royal Dutch Shell Plc, ‘Response to Shareholder Resolution on Climate Change’, 19 May 2015, p. 12, available at: <http://s01.static-shell.com/content/dam/shell-new/local/corporate/corporate/downloads/pdf/investor/agm/response-to-shareholder-resolution-on-climate-change.pdf>.

Table 3 Summary of Companies' Approaches to Climate Change

Company Name	Reports Emissions	Emission Targets	Market Mechanism	CSR used in relation to Climate Change	Shareholder Resolutions on Climate Change submitted
BP Plc	Yes	No	EU-ETS	Yes	Yes
Royal Dutch Shell Plc	Yes	No	EU-ETS	Yes	Yes
BG Group Plc	Yes	Yes (intensity)	EU-ETS	Yes	No
National Grid Plc	Yes	Yes (absolute but unstable)	Unclear	Yes	No
Centrica Plc	Yes	Yes (intensity)	Unclear	Yes	No

exploration, extraction and exploitation, but in many cases to increase production of fossil fuels, which will increase their GHG emissions. This is a necessary consequence of the shareholder wealth maximization principle, which stipulates that growth can be achieved through expansion, thereby increasing profits. This theoretical model of the company is in direct contradiction with the efforts required by these companies to reduce global GHG emissions.

An external review committee's review of Shell's 2014 Sustainability Report encapsulates the deep ambiguity which pervades many of the companies' reports concerning climate change. It states:

While the report explains Shell's present strategy in the context of the energy transition, it does not yet present a long-term vision with goals that make clear how Shell envisions its future role. Are future energy solutions including renewables perceived as a threat to Shell's business model or does Shell welcome and support the future they herald? How and in what time frame will Shell's capital investment evolve from today's fossil fuel predominance?¹³⁴

Most carbon major companies reviewed cite the importance of sustainability, yet sustainability is often pegged to the success of the business.¹³⁵ Although many of the reviewed companies call their annual reports 'sustainability reports', none mention profit-sacrificing activities, and future efficiency goals are linked to short pay-back periods. This is broadly consistent with the shareholder wealth maximization model that favours short-term profit making over long-term risk management. The deep ambiguity over climate change evidenced in these reports is understandable given that ambitious action on climate change could threaten the profit-based business models of carbon major entities. Current company law requirements do not incentivize or even support such companies in making the difficult decisions necessary to transition

¹³⁴ Royal Dutch Shell Plc, n. 62 above, p. 54.

¹³⁵ J. Browne, 'Addressing Global Climate Change', 19 May 1997, p. 6, available at: http://www.bp.com/content/dam/bp/pdf/speeches/1997/Addressing_Global_Climate_Change.pdf; National Grid, 'Our Contribution: A Framework for Environmental Sustainability in National Grid', p. 4, available at: <http://www2.nationalgrid.com/Responsibility/Non-financial-performance-report>.

away from their fossil fuel-based business models. Relying on Black's wider definition of decentred regulation, commercial norms and the profit-based business model have become strong, social, regulatory norms¹³⁶ which dominate the approaches of carbon majors to the regulation of climate change, and subvert the efforts of environmental regulation.

6. CONCLUSION

Having examined a variety of regulatory mechanisms, it is clear that these energy companies, while citing concerns about climate change, are not making dramatic efforts to reduce their GHG emissions. This is partly because they are subject to very few regulatory requirements to reduce their emissions. Domestic regulation imposes disclosure-only obligations on these companies. Consequentially, all five companies report their emissions, but only one company has absolute GHG reduction targets. These companies cite clear preferences for market-based and voluntary initiatives such as CSR. Their preferences are demonstrated by their activities; CSR initiatives are the most relied upon mechanism by these companies, and at least three of them also employ a market-based mechanism. These types of mechanism are not incentivizing carbon major companies to plan for a long-term transition away from fossil fuels. While all of the companies analyzed discuss and recognize the importance of climate change, none of them have long-term plans on how their business operations might change in order to dramatically reduce their GHG emissions and contributions to climate change. Shareholders in only two of the five companies have submitted resolutions on climate change, but this trend may increase as a result of the Paris Agreement.¹³⁷ Many companies anticipate that their traditional fossil fuel activities will continue to play a significant role in the energy future. In a sense, this is understandable as their business model, strongly influenced by the shareholder wealth maximization norm and section 172 of the UK Companies Act 2006, is predicated on global emissions continuing to grow. The results of this analysis are consistent with the differentiated regulatory treatment of transnational companies highlighted above. Although these carbon major companies are responsible for and have benefited from large volumes of emissions, and their emissions rival those of nation states, they are not subject to domestic or transnational emissions reduction regulations. Such differentiated treatment of carbon major emitters is anchored in company law requirements, as well as the commercial theories and norms which have come to dominate corporate approaches to climate change.

The law as it stands does not do enough to incentivize carbon major companies to implement the deep emissions cuts that are necessary. Despite recent regulatory innovations in an arguably progressive jurisdiction on climate change, an examination of national legislation and transnational mechanisms employed by or imposed on five carbon majors reveals both the weakness of regulatory measures and

¹³⁶ Black, n. 9 above, p. 26.

¹³⁷ N. 133 above; G. Cheeseman, 'Record Number of Climate Change Shareholder Resolutions Filed This Year', 28 Mar. 2016, available at: <http://www.justmeans.com/blogs/record-number-of-climate-change-shareholder-resolutions-filed-this-year>.

CSR and the relative inactivity of the companies themselves. Merely requiring companies to report their emissions does not ensure that they will reduce them. In the absence of strong regulatory requirements to reduce GHG emissions, CSR has attempted to fill the regulatory void. In this instance, it is arguable that the law has absented itself from the problem of corporate emissions and, by extension, climate change. Heyvaert notes that while law and regulation have a vital role to play in resolving the climate challenge, these tools are essentially conservative forces designed to promote stability and consistency.¹³⁸ The climate challenge may require radical change¹³⁹ from these carbon major actors, a feat that law may be inherently unsuited to tackle. Company law and theory, combined with commercial norms, are in fact subverting the effectiveness of environmental regulation.

Reform of both company law and traditional environmental regulation may be required to solve the problem of rising corporate emissions. Indeed, the very purpose of the company may need to be rethought.¹⁴⁰ The shareholder wealth maximization norm should be moderated by concerns for sustainable development¹⁴¹ as well as natural planetary boundaries.¹⁴² New theoretical norms of the company, focusing on the long-term viability of the entity itself instead of the short-term profits of its shareholders, would aid in transitioning to a more climate-friendly model of the company.¹⁴³ Models which incorporate social enterprise approaches, such as the community interest company (CIC)¹⁴⁴ and benefit company,¹⁴⁵ may also provide useful alternatives which allow companies to strive for sustainable value.¹⁴⁶ CICs were established in the UK as for-profit companies where the profits had to be utilized to benefit the community. Benefit companies were established in the US with

¹³⁸ Heyvaert, n. 13 above, p. 80.

¹³⁹ Ibid., p. 80. See also V. Heyvaert, 'Governing Climate Change: Towards a New Paradigm for Risk Regulation' (2011) 7(6) *The Modern Law Review*, pp. 817–44, at 843.

¹⁴⁰ B. Sjäffjell, 'Regulating Companies as if the World Matters: Reflecting from the Ongoing Sustainable Companies Project' (2012) 47(1) *Wake Forest Law Review*, pp. 113–34, at 122; K. Bubna-Litic, 'Corporate Social Responsibility: Using Climate Change to Illustrate the Intersection between Corporate Law and Environmental Law', *Environmental and Planning Law Journal*, Aug. 2007, pp. 1–39, at 33; Dine, n. 32 above, p. 174.

¹⁴¹ Sjäffjell, *ibid.*, p. 131.

¹⁴² B. Sjäffjell et al., 'Shareholder Primacy: The Main Barrier to Sustainable Companies', in Sjäffjell & Richardson, n. 119 above, pp. 79–147, at 147.

¹⁴³ A. Keay, 'Ascertaining the Corporate Objective: An Entity Maximization and Sustainability Model' (2008) 71(5) *The Modern Law Review*, pp. 663–98; D. Attenborough, 'Giving Purpose to the Corporate Purpose Debate: An Equitable Maximization and Viability Principle' (2011) 32(1) *Legal Studies*, pp. 4–34.

¹⁴⁴ Officer of the Regulator of Community Interest Companies, available at: <https://www.gov.uk/government/organisations/office-of-the-regulator-of-community-interest-companies>; Community Interest Company Association, available at: <http://www.cicassociation.org.uk/about/what-is-a-cic>; R.T. Esposito, 'The Social Enterprise Revolution in Corporate Law: A Primer on Emerging Corporate Entities in Europe and the United States and the Case for the Benefit Corporation' (2013) 4(2) *William & Mary Business Law Review*, pp. 639–714.

¹⁴⁵ See B Lab, available at: <https://www.bcorporation.net/what-are-b-corps/about-b-lab>; L. Johnson, 'Pluralism in Corporate Form: Corporate Law and Benefit Corps' (2012–13) 25(2) *Regent University Law Review*, pp. 269–98; B. McDonald, 'Committing to Doing Good and Doing Well: Fiduciary Duty in Benefit Corporations' (2014) 20(1) *Fordham Journal of Corporate and Financial Law*, pp. 19–72.

¹⁴⁶ Sjäffjell et al., n. 142 above, p. 147.

expanded fiduciary duties for directors to take into account both shareholder and stakeholder interests, as well as public benefits. While imposing such climate-friendly constraints upon areas such as company law and financial markets may initially appear radical, Richardson notes that if this type of action is not imposed, we may face even more draconian options in the future.¹⁴⁷

Further avenues of research could include investigating the viability of these company models or their adaptation to suit carbon majors, increasing the synergy between company law and environmental regulatory efforts, as well as conducting a comparative analysis of the impact of Anglo-American corporate theory on US-based carbon major entities. By insisting that corporate activities be respectful of natural planetary boundaries, company law coupled with environmental regulation might ensure that the corporate business model of profit maximization does not marginalize our future.

¹⁴⁷ Richardson, n. 119 above, p. 273.