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Two claims can adequately condense this chapter, the first of which was introduced among the epigraphs: “Power concedes nothing without a demand. It never did and it never will” (Douglass 1857) and “Civil society is to a great extent the only reliable motor for driving institutions to change at the pace required” (IPCC 2018, 352).

Despite the chasm of time dividing these statements and their being in reference to wholly different topics, they offer complementary insights into clarifying how Big Oil can achieve its duties of reparation and decarbonization. In fact, the first, by stating that pressure should be exerted on power in order to obtain concessions, leads to a need to identify who should exert the pressure. In this regard, the second claim—opportunistically advanced by the International Panel on Climate Change (IPCC) 1.5 report—unambiguously identifies this *who* in relation to climate change: civil society, by taking the leadership, should take the helm in inducing power to change.

At the same time, the 2017 Lofoten Declaration underlines the necessity to stop fossil fuel development and to manage the decline of existing production. The document highlights how the oil industry is the nerve

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center of power, emphasizing the potential for a broad base of public support for disrupting the carbon-intensive status quo. The declaration affirms “that it is the urgent responsibility and moral obligation of wealthy fossil fuel producers to lead in putting an end to fossil fuel development and to manage the decline of existing production” (Lofoten Declaration 2017).

This chapter aims at analyzing how David can *defeat* Goliath. Various smaller agents with relatively limited power—by and large belonging to civil society, subnational political systems, business, research communities and other collective organizations and groups—should be able to induce a formidable agent—Big Oil—to radically change its behavior by *destabilizing* it within the oil complex as well as undermining the very foundations of the oil complex itself.

It is worth remembering that this book—in contrast to other views that postulate a spontaneous endogenous decline of the fossil fuel industry, led by farsighted industrialists (e.g., Princen and Santana 2015)—assumes that Big Oil is highly unlikely to change its behavior exclusively of its own volition. A number of exogenous forces, exerted by agents of destabilization belonging to the categories mentioned above, are expected to subvert entrenched relationships and practices of the oil complex and of the companies within this complex so as to induce change.

Given the complicated dynamics of the oil complex, in order to explore the destabilization of Big Oil, the perspective of *transition studies* (Köhler et al. 2019) must be introduced, as it can better accommodate the notions of politics and hegemony analyzed in chapter 7 into the investigation of Big Oil’s destabilization. Transition studies is an area of research that scrutinizes societal systems as complex adaptive systems and analyzes them in terms of nonlinear and long-term processes of change from a transdisciplinary and integrative perspective (Avelino and Rotmans 2009). In other words, corporations and technologies are embedded within wider social and economic systems (Smith et al. 2005).

To understand how to destabilize Big Oil, it is useful to apply the basic elements of so-called transition analysis, which provides mesolevel

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assessments of socioeconomic agents vis-à-vis radical change in socio-technical systems (Geels, Berkhout, and Vuuren 2016). The kind of transition that concerns Big Oil can be understood as *purposive* because it involves a normative issue that tackles a problem for the common good, one that aims to achieve a set of social goals (Smith et al. 2005; Turnheim and Geels 2012). In brief, transition analysis can be employed to assess the sociopolitical acceptance and feasibility of departures from current states of affairs through investigation of the interpretations, strategies, and resources of different social forces whose alignment and coordination eventually determine the effectiveness of climate change policy.

In truth, transition analysis was originally developed—and is still exclusively used—to explore how to break free from the carbon trap and pursue a low-carbon transition (i.e., in this context, Big Oil’s accomplishment of the duty of decarbonization). It can nonetheless be extended—as evinced by what follows—to include the financial rectification required by the duty of reparation among the radical changes demanded of Big Oil. At any rate, the main rationale behind the approaches included in transition studies is that in light of the previous analysis of hegemony and power, they can provide insights into the strategies and struggles of the agents of destabilization that, by triggering *sensitive intervention points* (Farmer et al. 2019), can overcome, or at least weaken, Big Oil’s resistance to the erosion of its power. The main objective of this chapter is, in fact, to investigate such entry points of destabilization, the relevant agents of destabilization that are involved in them, and what steps such agents can take to put these destabilization approaches into practice.

### CONFRONTING THE OIL COMPLEX AND BIG OIL’S RESISTANCE

Destabilizing Big Oil requires wearing down its resistance against attacks meant to undermine it and/or the oil complex. Resistance—largely formed through its material, discursive, and organizational hegemony—is crucial in the case of Big Oil. The anthropologist and professor of sociology David J. Hess (2014, 279), for instance, underlines that in the case

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of a low-carbon transition, “the political contestation by the incumbent industrial regime is so well organized that it should be at the center of the analytical framework.”

Destabilization of Big Oil involves a purposive transition, as said. As a consequence, given the stressed unlikelihood that oil and gas companies have the adequate endogenous incentives to pursue social goals, external pressure exerted by agents of destabilization—mostly social movements, subnational political authorities, public opinion, and, more broadly, civil society—as well as technological advances play a pivotal role. To destabilize Big Oil, it is therefore necessary to look at social, political, and economic forces and at the sensitive intervention points through which these forces can *kick* or *shift* (Farmer et al. 2019) it within the oil complex.

Oil companies are huge economically and politically powerful and scale-intensive entities. They also have a myriad of complementary assets, such as technologies, scientific knowledge, specialized manufacturing capabilities, and lobbying skills. They have much to lose by changes imposed from the outside and enough means to buffer themselves from them. On the one hand, they are locked into their carbon-intensive business models and have sunk investments in existing technologies, skills, and people (Unruh 2000; Seto et al. 2016); they also tend to see change as risky and potentially disruptive for their existing competencies (Geels 2014).

On the other hand, as underlined in chapter 7, Big Oil has been successful in forming a stable hegemonic historical bloc—the oil complex—oriented at maintaining the current state of affairs. In particular, oil and gas companies and incumbent governments are mutually dependent with a shared interest in preserving the stability of the oil business in view of stimulating economic growth. Big Oil, in fact, depends on government to provide—or at least not upend—the general operating context (property rights, exchange rules, governance structures for corporate behavior) and for support in the form of subsidies, tariff protection, tax concession, and information and research services. By the same token, governments and socioeconomic systems (at least in all the countries of

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the major companies) depend heavily on economic growth and therefore systematically advance the interests of agents—in this case, the oil industry—which can further such growth as well as contribute to job creation, tax revenues, and social dynamism (Newell and Paterson 1998).

The relevance of the media to the oil complex and the latter's skill at making its voice heard have always been formidable, and yet they have experienced a boom in the last forty years. This is largely due both to the already-mentioned emergence of a neoliberal, probusiness rhetoric, which emphasizes free markets, privatization, and deregulation and managed to achieve consensual legitimacy, and to the more stringent political mobilization of corporate interests in response to social and environmental regulations. In sum, the stability of the oil complex and of Big Oil is the result of "specific alignments of material, organizational, and discursive formations which stabilize and reproduce relations of production and meaning" (Levy and Newell 2002, 87).

Therefore, to investigate how Big Oil can undergo the radical transformation in its behavior demanded by the duties of reparation and decarbonization, it is necessary to explore how to undermine the resistance to fundamental change of the core regime level alliance, that is, the oil complex.

To effectively address the climate crisis, political action and the struggle with the power of the oil industry are inevitable (Roberts 2019b). Big Oil can use different forms of power within the oil complex—which resonate with the Gramscian hegemony dimensions (organizational, discursive, and material) outlined in chapter 7—to resist changes that address the climate crisis as those required by the duties it faces.

First, organizational hegemony allows Big Oil to use *instrumental* forms of power—money, authority, access to media, lobbying skills, and networks—in direct interactions with other agents to pursue their interests and achieve their goals.

Second, such hegemony contributes as well to another form of power, *institutional*, that is embedded in political cultures, ideology, and governance structures and that greatly facilitates incumbents' resistance. For

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example, despite a median social cost of carbon estimated at \$80–100 per tonne (Pindyck 2019), the neoliberal, promarket ideology that underpins climate governance implies that it is the market itself that should decide the best low-carbon options. Unfortunately, oil production remains so profitable that even an astonishing carbon tax of \$200 per tonne would reduce global emissions by only 4 percent (Heal and Schlenker 2019). By the same token, it seems that carbon credits have provided little or no environmental gain, as they supported projects that would have come into being anyway. This is the case, for instance, for 85 percent of the projects under the United Nations (UN)'s Clean Development Mechanism, which issues a carbon credit for each ton of CO<sub>2</sub> avoided in the form of investments in developing countries (Cavendish 2019). Therefore, while the market-based approach to climate change may seem neutral, it actually privileges the oil industry, given its capabilities, financial resources, and established market positions. According to professor of geography Erik Swyngedouw (2010), the political dimensions that have prospered within the oil complex are camouflaged as a *postpolitical* narrative; this suggests that climate change can be addressed exclusively through techno-economic management approaches, thus excluding a wider political and cultural debate and eventually favoring the existing regime.

Third, Big Oil largely relies on *discursive* forms of power—favored by its discursive hegemony—through which it can direct and shape the narrative on fossil fuels and climate change. This is not a practice uncommon in the world of self-advantageous trade and business; however, it becomes morally problematic when it is based on false premises. As made clear in part I of the book, Big Oil not only wields formidable influence but also has become astonishingly skilled at framing the dimensions in a number of ways: diagnostic, which identifies and defines problems; prognostic, which advances solutions to problems; and motivational, which provides a rationale for action.

For instance, relying on the aforementioned forms of power, Big Oil has funded think tanks and websites engaged in climate denial whose

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purpose is to discourage people from fighting climate change or to drive nonexistent wedges between climate movements.

Fourth, drawing on its scientific, technical, and financial capabilities originating from its material hegemony, Big Oil has resorted to *material* power to make its technologies and activities less controversial. Most of the time, material power, in order to better prevent adverse regulations and attract potential funders, is coupled with the discursive one that proclaims that the industry's silver bullet against climate change is already in the chamber.

Examples of the use of discursive and materials powers working hand in hand are the countless technological innovations—flue gas desulfurization devices, supercritical pulverized coal technologies, coal gasification—that would have contributed to the emergence of *clean coal* and the carbon capture and storage techniques that, despite their technical feasibility and potential, still present significant uncertainties in terms of scale needed and commercial viability. Since the beginning of 2019, for instance, some of the largest oil majors (e.g., Chevron, Exxon-Mobil) have been announcing partnerships with start-ups whose technologies remove carbon from the atmosphere (Deich and Reali 2019). These examples also recall one entrenched moral question that such forms of power raise, namely the trade-off between Big Oil's potential to advance such technologies and its interest in favoring them in order to ensure an extended life to fossil fuels.

Of chief concern in relation to the destabilization of Big Oil in the context of the climate crisis are the pressures deriving from the external environment in terms of cultural and sociopolitical milieux and from markets and technologies. For instance, the emergence of anti-fossil fuel norms, climate litigation, and the reduction/elimination of subsidies to the oil industry all testify to a declining legitimacy in the first ambit; divestment and "*keep it in the ground*" initiatives as well as individual consumers' actions originate from market pressures.

In any case, politics in the broad sense, prompted by civil society activism, must erode power, and as the abovementioned IPCC 1.5 report (IPCC 2018) indicates, it is those agents that part II defines as indirect agents of

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justice—which as anticipated, for the dialectics of this part of the book, will henceforth simply be referred to as *agents of destabilization*—who must *play at* politics to induce Big Oil to change by eroding its powers. This is patently—albeit involuntarily—confirmed by Organization of the Petroleum Exporting Countries secretary-general General Mohammad Barkindo, who said that “unscientific” attacks by climate activists are “perhaps the greatest threat to our industry going forward” (Meredith 2019).

### BIG OIL'S POWERS AND AGENTS OF DESTABILIZATION

Big Oil's power is overwhelming, but at the same time it seems to have become “promisingly unstable” (Sovacool and Brisbois 2019, 1), thanks in no small part to relevant agents' growing efforts of power erosion and subsequent destabilization.

Work on regime-destabilization evinces that by and large, destabilization processes occur in three main ways: through the progressive reduction of external financial flows; because of the erosions of legitimacy, the removal of the social license to operate, and reduced support in the external sociopolitical environment; and by means of a declining endogenous commitment of the companies themselves toward the regime they are part of (Turnheim and Geels 2013). The book acknowledges that destabilizing the oil complex is a huge challenge that involves all these modes but, in light of the analysis conducted so far, emphasizes the importance of an expressive and symbolic process of developing new social norms and institutionalizing new moral principles (Abbott 2012; Gunningham 2017) able to activate *sensitive intervention points*. Agents of destabilization are well suited to developing the transnational organized networks expected to target these entry points for eroding Big Oil's power.

In fact, agents of destabilization have different specificities and capacities and thus play different roles in undermining the various forms of Big Oil's power. This section analyzes which agents of destabilization are best suited to confront such diverse forms of powers within the politics of the oil complex. This analysis is crucial for Big Oil to achieve its



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(first-order) duties, since it obviates the risk of indeterminacy of agents of destabilization's second-order duties that would undermine their effectiveness, as highlighted in chapter 4.

It is first worth recalling who the relevant agents of destabilization are before investigating their role and potential in triggering the required intervention. As suggested, the most fertile ground for inducing Big Oil to change its behavior in accordance with the demands posed by its responsibility and duties is through modification of the social, political, economic, moral, and legal contexts it operates in. With regard to this point, the actions that concern the destabilization of oil and gas companies relate to external contexts (the spreading of norms and practices and the undermining of resistance to change) and to politics, the market, and technologies (financial disincentivizing and facilitation of research on and diffusion of clean technologies).

Given the importance of weakening Big Oil's resistance and the hegemonic nature of the oil complex—in which markets and technologies often seem to dance to the tune played by Big Oil, where the state provides the dance floor and the orchestra (Lindblom 2001)—it is crucial to analyze the role of these agents of destabilization that can be effective for spreading norms and undermining resistance.

Said analysis should almost take priority over other studies into the actual destabilization of Big Oil; understanding the role of such agents may represent a sort of unavoidable prerequisite to exploring the role of the agents involved in more operational tasks such as financial disincentivizing and the search for new technologies. The latter depend largely on government (e.g., fiscal, regulatory, industrial, legal instruments as well as funding for research) and market initiatives that are more conceivable when the sociocultural context is *ripe*, as pointed out in part II. However, to achieve this level of maturity, the main actions must be rooted in norm spreading and resistance undermining.

For the sake of clarity, agents of destabilization involved in spreading norms and undermining resistance are considered to be *primary* forces; those who use regulations, markets, legal action, and/or financial means

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to steer/change Big Oil's behavior are referred to as *operational* forces. Although the distinction between primary and operational agents of destabilization is blurred, since they both can focus on the same sensitive intervention points, primary agents tend to aim at shifting the dynamics of a system by substantially changing its rules and trajectories (e.g., key values and concepts and institutions in the socioeconomic-political context). Operational agents, on the other hand, are those who kick a system into novel trajectories, based on the changed underlying system dynamics or without introducing new ones (Farmer et al. 2019).

Primary agents of destabilization lay the fundamental groundwork in a bottom-up and quasi-anarchic way to prepare societies to acknowledge and accept the inadmissibility and future impossibility of fossil fuel. To adopt a parallel trajectory to society's gradual rejection of tobacco, these agents should also raise awareness of the negative health effects, both locally and globally, of fossil fuel combustion. On this fertile ground, operational agents of destabilization should introduce the measures aimed at challenging Big Oil's powers in view of its destabilization.

This section develops a general framework of the agents of destabilization who can most expect to erode Big Oil's powers by exerting fundamental pressure on the oil complex and also briefly highlights their roles with regard to the climate crisis. The following two sections analyze the nature, objectives in terms of sensitive intervention points, and strategies of primary and operational agents for Big Oil destabilization.

In light of the multifaceted features of Big Oil's powers and with reference to the indirect agents—those indicated as having second-order duties to ensure that reparation and decarbonization are enacted—it seems that charismatic individuals and social movements are in the most advantageous position to fracture the instrumental, discursive, and institutional forms of Big Oil's power. Research institutions and financial actors are the most effective forces in challenging its material power.

As for the first forms of power (instrumental, discursive, institutional), charismatic individuals have a prominent role in calling on societies and their broad cultural contexts to respond to the challenges posed by the

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climate crisis and in helping develop the adequate institutional responses. It could be the novelty of the challenge that makes people particularly susceptible to compelling outsiders: given the extremely limited permeability of the hegemonic bloc to external interference, these charismatic individuals must not hail from within the established hierarchy of the group so as to avoid any finger-pointing for responsibility for the status quo.

Such front-runners in the climate discourse are, by and large, able to quickly mobilize people to consider and confront particularly urgent aspects of the climate crisis, such as the harmfulness of fossil fuels (e.g., Pope Francis, Greta Thunberg), the reckless behavior of Big Oil, and the urgency to divest from it (e.g., the environmental activist Bill McKibben). These agents prepare the ground to monitor the industry's efforts to fulfill its duties of reparation and decarbonization. Their distinctive role is to converge and catalyze the pressures that hail from civil society, transforming them into an ever-increasing wave of novel forces to challenge Big Oil's power especially on instrumental, discursive, and institutional grounds.

These novel forces are usually referred to as *social movements*, that is, “networks of informal interactions between a plurality of individuals, groups and or organizations, engaged in political or cultural conflicts, on the basis of shared collective identities” (Diani 1992, 1). For practical purposes, social movements are coalitions of individuals and organizations from both civil society and the private and public sectors. Social movements' collective action is indeed a key factor to changes in human, social, and economic systems (Della Porta and Diani 2006, 33–63); they are the foremost primary agents of destabilization for weakening Big Oil's resistance: “Challenging and undermining the fossil fuel historical bloc on the scale necessary for maintaining the familiar stability of the Earth system will surely rely on the success of widespread and sustained movement building” (Phelan, Henderson-Sellers, and Taplin 2013, 216). For instance, BP, in a leaked briefing dated January 14, 2020, titled *BP Creative Workshop*, clarifies that a major threat to the company comes from climate movements and, in particular, their capacity to erode the social license to operate of oil companies (BP 2020a).

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Collective action, however, is not automatically triggered by the structural tensions generated by and within the oil complex. Rather, a number of factors determine whether or not collective action occurs. Among the most prominent are the availability of adequate organizational resources, the ability of movements to create appropriate ideological and practical representations of the issues at stake, and the presence of a favorable context. In relation to the oil complex, such factors face a particularly harsh obstacle: the stubborn opposition and tenacious resistance of the Big Oil historical bloc.

As said in chapter 7, most of the social movements working on climate change established themselves as counterhegemonic forces through the representation of climate change as a threat to humanity. Its main protagonists—including oil and gas companies—are presented as being mostly concerned with safeguarding their own interests, often in conflict with those of humanity. By so doing, social movements have successfully begun to threaten the contingent hegemonic stability of Big Oil's dominant position.

The counterhegemonic forces of social movements are eroding Big Oil's instrumental, discursive, and institutional powers along, at least, three main avenues: first, by exerting social, political, and economic pressure to endorse the institutional divestment of assets including stocks, bonds, and other financial instruments connected to these companies; second, by demanding an immediate stop to new fossil fuel development—in terms of both production and infrastructures—and that the oil industry move toward a just low-carbon transition; and third, by spreading awareness—despite the mighty rhetorical denial machine and action of some of the oil majors, as depicted in part I—that climate change is occurring in the here and now and that it is going to wreak severe consequences globally if it is not addressed promptly.

The disruption of Big Oil's material power will require the efforts of research institutions to play the all-important role of being the genesis of technological and social innovation. Their ability to weaken Big Oil's material power mainly lies in developing new products, services, and

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business models; contributing to creating markets for novel technologies; and diffusing such technologies. At a different level, research institutions should also contribute to shaping societal discourses and problem framing, lobby for specific policies and regulations, develop industry standards, legitimate new technologies, or shape collective expectations (Binz et al. 2016; Rosenbloom, Berton, and Meadowcroft 2016).

On the other hand, financial actors—mostly pension funds and sovereign wealth funds as well as central, investment, and commercial banks—should modify their objectives and practices, especially in view of the fact that their cash injections into the industry have been partly to blame for the recent growth spurt of oil and gas companies (RAN et al. 2021). In order to erode Big Oil's material power, financial institutions should first and foremost take the very simple step of abolishing all fossil fuel-related funding. In broader terms, they should also adopt a number of internal measures, such as strengthening the assessment and monitoring of climate-related financial risks, integrating sustainability into their own portfolio management, and sharing knowledge with other stakeholders on the management of climate-related financial risks (Carney, Galhau, and Elderson 2019).

Indeed, the relationship between Big Oil's powers and agents of destabilization is very useful in analytical terms, but by no means is it clear-cut. For instance, specific agents of destabilization might have a distinctive role with regard to particular forms of power: financial agents play a decisive role in weakening Big Oil's institutional power, despite the fact that a common theme between this kind of power and the discursive and material ones is the centrality of charismatic individual and social movements. Or, again, some forms of power are mutually fortifying, and therefore their erosion requires the concerted pressure of multiple agents of destabilization: for example, material and discursive powers often strengthen one another, and thus both social movements and financial agents are decisive in addressing these forms of power. A further critical issue relates to the impossibility—or extreme difficulty—of agents of destabilization, both primary and operational, having an active

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role in authoritarian regimes: unfortunately, the great majority of NOCs belong to countries under authoritarian regimes (Economist Intelligence Unit 2021).

### PRIMARY AGENTS OF DESTABILIZATION

The current historical juncture has brought climate change to the forefront of global news, meaning that the time seems ripe to finally address it: while its impacts are increasingly evident worldwide, climate concern has also trickled up to the top of the political agenda. However, in other circumstances during the past three decades, it also seemed that our political leaders were on the cusp of seriously engaging with climate change. Alas, for a variety of reasons, they did not tackle the issue. One fundamental differentiation that can be made with the past is that previous responses to the climate challenge were fundamentally built on the evidence of the mounting environmental crisis, while nowadays, despite the enduring apparent helplessness of UN multilateral negotiations, action gets momentum by the mobilization of people, particularly to destabilize the oil complex and Big Oil.

To engage the public and give them the prerequisites to challenge entrenched powers, it is essential to change human values and cultural worldviews about climate change, which are the *currency* of persuasion (Sovacool and Griffiths 2020). In the context of such a politicized issue in the so-called posttruth world, where the political culture is framed more on appeals to emotions than on facts, the latter have become largely irrelevant to the public. Modifying values and worldviews about climate change and creating the conditions for people and other agents to act and be listened to by decision makers is, in a nutshell, the role of primary agents of destabilization.

The great achievers in this daunting task, as said, are the charismatic individuals and social movements that are acting either as norm entrepreneurs or champions. After the failure of the 2009 COP 15 in Copenhagen, charismatic members of civil society stepped into the guise of what can be

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effectively described as norm entrepreneurs. For example, the prominent campaigner Bill McKibben has mobilized moral outrage against fossil fuel companies. Similarly, Pope Francis (2015) called for the phasing out of fossil fuels in his climate change encyclical; more recently he asked “the world to give up fossil fuels,” claiming that the climate is in a state of “emergency . . . caused by human activity” (Cummings McLean 2019); encouraged governments and corporations around the world to urgently address climate change (Knutson 2020); and eventually exhorted Catholics to divest from fossil fuels (Pullella 2020).

Other charismatic individuals have emerged from civil society. The international lawyer Polly Higgins, for example, has long striven to have ecocide recognized as an international crime. This, according to Jojo Mehta, cofounder of the Stop Ecocide campaign, would help to create a cultural shift in how the world perceives acts of harm toward nature (Mehta and Jackson 2021). This crime would make the people who commissioned it—such as oil majors’ CEOs and executives and, within a state context, ministers and heads of state—liable for the harm they do to others. Higgins was particularly targeting Shell to establish whether the company could be accused of ecocide (Hope 2019b).

The teenage Swedish activist Greta Thunberg, who has successfully managed to mobilize millions of mainly young people to take part in *Fridays for Future* protests across the globe, warns that climate change is generating an existential crisis for humanity, in particular for future generations, and that too little is being done, urging decision makers to listen to scientists (Sabherwal et al. 2021).

Social/moral norms are for the most part originated by *norm entrepreneurs*, agents—often individuals such as the ones mentioned above—highly motivated to overcome a perceived injustice/problem/barrier, usually through an organizational platform, such as nongovernmental organizations, social movements, and international organizations (Finnemore and Sikkink 1998). Norm entrepreneurs aim to forge a new standard of behavior, one that will be accepted in the international system. Given the vested interests that typically coalesce around the

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injustice/problem/barrier that norm entrepreneurs wish to tackle, they must adopt creative tactics to disrupt existing logics. *Norm champions* are those political and nonpolitical agents that promptly adopt a norm and, through national and international channels, pressure others to do the same. Norm entrepreneurs and champions are usually linked through transnational advocacy networks that campaign for change at multiple levels (Keck and Sikkink 2014).

By and large, the challenge to Big Oil's power greatly benefits from charismatic norm entrepreneurs that include figures such as religious leaders, film actors, writers, and other gifted and dedicated communicators. These charismatic individual agents of destabilization are often the best channels to reliably and effectively communicate climate change to the public. Climate scientists able to adopt accessible language can play a significant role too, such as the German, Austrian, and Swiss Scientists for Future initiative, as can science journalists writing for mass appeal publications. In broader terms, an interesting insight into individual primary agents of destabilization is provided by the Climate 100 list (the world's most influential people in climate policy) published by Apolitical, a global network for public servants and government, that includes household names from the spheres of broadcasting, politics, journalism, and academia (Apolitical n.d.). By the same token, environmental advocacy groups and reliable investigative media sources are also important primary agents that can step into the role of both norm entrepreneurs and norm champions.

Among the nongovernmental organizations most active in their advocacy of the responsibility of the oil industry and its duties to rectify the harm caused by climate change are the Union of Concerned Scientists (UCS), the Center for International Environmental Law (CIEL), and Oil Change International. For example, in 2017, CIEL published a fundamental report—*Smoke and Fumes: The Legal and Evidentiary Basis for Holding Big Oil Accountable for the Climate Crisis*—that evaluates the evidence for Big Oil's liability in light of fundamental principles of legal responsibility, concluding that oil and gas companies should be held accountable for climate harm (CIEL 2017).



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At the same time, respected newspapers and magazines (e.g., *The Guardian*, *The New Yorker*) often publish pieces both by their journalists (e.g., George Monbiot and Elizabeth Kolbert) and external experts (e.g., Peter Frumhoff of UCS, Bill McKibben, the historian of science Naomi Oreskes) supporting the thesis of responsibility and financial liability for Big Oil. Similarly, investigative journalism (e.g., the *Climate Investigation Center*, *DeSmog*, and *Inside Climate News*), while casting light on the concealed aspects of the oil world, is repeatedly making the case for financial rectification. And in the case of *The Guardian*, advertising from the fossil fuel industry has been banned.

An example of an apparently unlikely yet symbolically very significant norm entrepreneur with regard to divestment from fossil fuel is the leading peer-reviewed medical journal *BMJ* (formerly the *British Medical Journal*). It launched a divestment campaign—dubbed *investing in humanity* based on a case for divestment made previously by the same journal (Tillmann et al. 2015)—aimed at health professionals and medical organizations using moral arguments to justify its campaign (Abbasi and Goodlee 2020). In the same editorial, the *BMJ* announced also that it will no longer accept advertisements from fossil fuel companies or publish research funded by them.

An important global social movement that acted as a norm champion is the Fossil Free divestment movement, which is at the forefront of civil society initiatives to raise public consciousness about the need to decarbonize socioeconomic systems by divesting from the business. As already underlined, according to the movement's website, as of September 2021, 1,335 institutions are divesting \$14.65 trillion from the fossil fuel industry, while more than 58,000 individuals are divesting \$5.2 billion (Fossil Free n.d.).

A further relevant norm champion social movement is one repeatedly mentioned in these pages, the Keep It In The Ground movement, about which, interestingly, the *Wall Street Journal* claims, “What was the radical-left position of a few years ago—*Keep It In The Ground*—is now mainstream” (Strassel 2019). Other important social movements are the Powering Past

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Coal Alliance, which includes more than twenty-five countries that have pledged to phase out coal-fired power generation; 350.org, whose objective is to end the age of fossil fuels and build a future free from the destructive impacts of climate change and from the out-of-control corporations that caused it; and the Stop the Money Pipeline coalition, which demands that banks, asset managers, insurance companies, and institutional investors stop funding, insuring, and investing in fossil fuel infrastructure.

A particularly interesting—yet powerful despite its short history—international movement is the so-called Fridays for Future mentioned above. It was initiated in August 2018 outside the Swedish parliament when Greta Thunberg held a sign that read *Skolstrejk för klimatet* (School strike for the climate). This movement was initially made up of a handful of school-age students who did not attend classes on successive Fridays to take part in demonstrations to demand action to prevent further climate change. In a very short span of time, the movement brought to the streets millions of protestors worldwide of all ages and from all walks of life. Thunberg is the charismatic norm entrepreneur who targets adults in positions of authority, both in fossil fuel corporations and political institutions, for their responsibility for carbon emissions and doing far too little to reduce them. In the same vein, for instance, is the American Sunrise Movement, a youth-led political movement that advocates political action on climate change.

The initiatives promoted by the norm champion Extinction Rebellion (XR), a sociopolitical movement established in the United Kingdom in May 2018, seem to be making an impact. At the time this book was being finished, XR was operational in eighty-three countries and had 1,196 local groups. XR uses civil disobedience and nonviolent resistance to protest against the climate crisis and defines itself as “a decentralised, international, and politically non-partisan movement using non-violent direct action and civil disobedience to persuade governments to act justly on the Climate and Ecological Emergency” (XR n.d.).

Casting an eye in particular on the duty of decarbonization, anti-fossil fuel norms are expected to form the necessary cultural and moral

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backbone of awareness about the harm wreaked by fossil fuel–related activities, with the objective of favoring socioeconomic systems’ transition toward less carbon-intensive models. Therefore, such norms aim at changing current socioeconomic systems by convincing people intellectually and emotionally that fossil fuels, given their harmfulness, are morally wrong. In the case of the duty of decarbonization, the moral-normative contents of such norms should consist of the prohibition of operating with fossil fuels.

In brief, with regard to decarbonization, while individual norm entrepreneurs remain crucial, the absence of adequate political action at the national and international levels currently makes social movements the most powerful anti–fossil fuel norm champions for effectively overcoming the carbon era. Their mobilization is largely focused on the approaches of supply-side climate policy described in chapter 6, with the goal of restricting fossil fuel supply so as to steer societies toward a carbon-free world. At any rate, social movements and, more broadly, nonstate actors have had a remarkable impact on reducing carbon emissions worldwide (Hsu et al. 2019).

Primary agents of destabilization have important normative and practical implications for Big Oil and climate policy and politics. On normative grounds, they shed light on different climate policies focused on the supply side, much more relevant to engaging Big Oil, as said, in the climate change struggle. On practical grounds, the broadness and inclusiveness of such agents (especially social movements) make the fight against climate change a truly global effort at any societal level.

In sum, on the one hand, social movements—most often started, organized, and led by charismatic individual norm entrepreneurs—capable of laying the groundwork to destabilize Big Oil have a broader goal of societal transition by stopping unwanted practices and policies, leveling out social inequalities, and promoting low/zero-carbon technologies while supporting alternative just measures. On the other hand, social movements have been successful in integrating the previously dispersed individuals and coalitions, thereby increasing their efficiency. All in all,

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primary agents of destabilization have thrown open the doors of the policy process by encouraging greater participation from different coalitions in decision making and in policy implementation. By so doing, they have managed to exert substantial destabilizing pressure on oil and gas companies—social movements can actually significantly orient votes in elections and mobilize extensive street protest—and prepare the terrain for the implementation of incisive actions required to compel Big Oil to meet its duties of reparation and decarbonization.

### OPERATIONAL AGENTS OF DESTABILIZATION

The quintessential operational agents of destabilization in the oil complex are political authorities at various level, which—thanks to the *fertilization* seed work done by primary agents of destabilization—are expected to effect changes by introducing the necessary actions to disrupt Big Oil. For instance, political authorities can implement instruments—both regulatory and market-based—to limit the supply and demand of fossil fuels, eliminate subsidies to the oil industry, and ban fossil fuels altogether: in this spirit, US president Joe Biden signed an executive order in January 2021 directing federal agencies to eliminate subsidies for fossil fuels.

While a thorough analysis of the role of political authorities in climate change would be impossible, with regard to the oil industry it is useful to shed light on the role of political agents at the subnational level. The following two chapters, however, will include some national-level actions in relation to the duties of reparation and decarbonization for the different groups of oil and gas companies. Subnational political agents have championed anti-fossil fuel norms by, for instance, banning fracking in their jurisdiction or, more ambitiously, phasing out fossil fuels, as happened in Hawaii and stated in the bill signed by California's former governor Jerry Brown, which should be followed by other US states, from Nevada to Michigan to New York, as well as Washington, DC (Roth 2019).

In the United States, subnational political authorities have acted as operational agents of destabilization in a broader and possibly more

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effective way by suing Big Oil through state lawsuits alleging both consumer and investor fraud over climate risks (Drugmand 2019a, 2019b), a strategy that calls to mind the public proceedings that forty-six US state attorneys general collectively launched against the tobacco industry in 1999. For instance, the District of Columbia and Hawaii's Maui County sued oil majors BP, Chevron, ExxonMobil, and Shell, accusing them of deceiving consumers about climate change risks and engaging in a coordinated decades-long campaign to mislead the public (Savage 2020). The State of Minnesota instead filed a lawsuit against Exxon, three Koch Industries entities, and the American Petroleum Institute, accusing them of consumer fraud and other violations for their protracted deception initiatives (Hasemyer 2020).

It is interesting to note how the establishment and instigation of such legal initiatives are greatly favored by primary agents of destabilization. For instance, New York City (a subnational political authority) mayor Bill de Blasio (a charismatic individual), presented the city's lawsuit seeking billions in damages from five major oil companies (BP, Chevron, ConocoPhillips, ExxonMobil, and Shell) to cover infrastructure improvements needed to protect New Yorkers from the increasing effects of climate change. During the press briefing, he clarified that the industry must be held accountable and financially liable for harm caused by climate change.

Climate litigation is rapidly growing worldwide: more than fifteen hundred lawsuits, many targeting governments or corporations, have been filed in thirty-seven countries; cases are increasing in number outside the United States, including the Global South, which has seen fifty-eight cases so far (Setzer and Higham 2021).<sup>1</sup>

Social movements are actively exploring innovative approaches to hold Big Oil accountable on legal grounds. Exploiting various legal loopholes in the United States, a vast number of shareholders are currently plaintiffs against oil and gas companies, suing companies' officials, directors, and board members for not having protected their investments and the company from climate risk (Savage 2019). The industry is, in fact, starting to acknowledge that climate litigation threatens its business; Shell,

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for instance, in its 2018 *Annual Report* writes: “Further, in some countries, governments, regulators, organizations and individuals have filed lawsuits seeking to hold fossil fuel companies liable for costs associated with climate change. While we believe these lawsuits to be without merit, losing any of these lawsuits could have a material adverse effect on our earnings, cash flows and financial condition” (Shell 2020a).

Not all lawsuits are successful: as already said in chapter 5, the New York State attorney general’s case was dismissed by the judge, ruling that the company did not defraud investors out of up to \$1.6 billion by covering up the true cost of climate change regulation. At any rate, climate litigation is becoming increasingly frequent in all four corners of the globe, and generally the main objective is to make fossil fuel companies liable for the impacts of climate change. In fact, courts have often helped to accelerate social change in critical moments in history—the end of slavery, racial desegregation, gender equality—and it is no surprise that they are in demand to contribute to solving the climate crisis.

Other operational agents of destabilization who have been promisingly active in confronting the oil complex are the economic ones: the title of a piece published in the *New Yorker* by McKibben (2019) is as direct as it is compelling: “*Money Is the Oxygen on Which the Fire of Global Warming Burns.*” The scientific and policy community has even provided principles to cut off the oxygen the industry thrives on—the three *Oxford Martin Principles for Climate-Conscious Investment*, commitment to net-zero emissions, profitable net-zero business model, and quantitative medium-term targets—for assessing whether investments are consistent with long-term climate goals (Millar et al. 2018).

Global finance could be the driving force behind the new phase in the effort to address climate change, as investors increasingly become aware of the reality of climate risk; in an attempt to protect their interests, they are channeling investments into greener ventures, consequently stimulating climate stability (Colgan, Green, and Hale 2020). The European Central Bank and the US Federal Reserve, for example, have signaled their intent to make climate considerations a central part of finance. In

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November 2020 Mark Carney, the former governor of the Bank of England and current UN special envoy for climate action and finance, called on banks, insurers, and investment funds to disclose how closely their business choices were aligned with climate goals as part of the economy-wide transition to the hoped-for net-zero aims (Kirka 2020).

Others warn instead that the role of financial institutions should not be overstated because sometimes they offer *various greenery* to their clients to justify charging higher fees (Economist 2020). On a more sour note, it is worth noting that investments in initiatives to reduce carbon emissions fell in 2018 and that a percentage of it saw its way back to the fossil fuel industry (Buchner et al. 2019).

Economic agents such as commercial banks, development banks, insurers, pension funds, and sovereign wealth funds are the main drivers behind growth in committed assets in fossil fuels. They must facilitate the development of capital market instruments that package risk and return and asset allocation strategies that align portfolios with the low-carbon transition. In this vein the 2019 UN Trade and Development Commission report demanded a profound restructuring of the global financial system to cope with climate change (UNCTAD 2019).

Commercial banks are already starting to get into line. For instance, JPMorgan Chase, the world's biggest fossil fuel investor, committed to a Paris Agreement alignment of its lending practices (Benoit 2020) and announced that between 2021 and 2030 it would finance and facilitate more than \$2.5 trillion to advance climate action and sustainable development. Similarly, Deutsche Bank, Citigroup, and Barclays (which have more than \$47 trillion in assets) are among the 130 banks that adopted the new UN-backed responsible banking principles to fight climate change that requires their loans be shifted away from fossil fuels (Green 2019). UniCredit, the biggest Italian bank, has pledged to halt all lending for coal projects by 2023 (Za 2019). Even the US giant in investment banking, Goldman Sachs, announced that it will no longer finance oil drilling or exploration in the Arctic and coal mining and coal power projects worldwide (Brown 2019).

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Unfortunately, the reality still looks grim: the world's biggest sixty banks have provided \$3.8 trillion of financing for fossil fuel companies since the Paris Agreement, and the slump in energy demand caused by the COVID-19 pandemic did not stop this upward trend, seeing as the figure for 2020 was higher than those of previous years (RAN et al. 2021). In fact, most of directors at the world's biggest banks have affiliations with the fossil fuel industry (Cooke et al. 2021).

Development banks, such as the African Development Bank, the Asian Development Bank, the Asia Infrastructure Investment Bank, the European Bank for Reconstruction and Development, and the World Bank at the global level are similarly planning to divest from fossil fuels (Jerving 2019). In the meantime, the European Investment Bank, which defines itself as the “lending arm of the European Union” and “the biggest multilateral financial institution in the world and one of the largest providers of climate finance,” announced that it will stop financing fossil fuel energy projects from the end of 2021; that its future financing activities will focus on the promotion of clean energy innovation, energy efficiency, and renewables; and that it will mobilize €1 (\$1.13) trillion into climate action and sustainable investment in the decade to 2030 (European Investment Bank 2019). The European Investment Bank adopted the Climate Bank Roadmap through which to increase its lending to climate action and green activities to more than half of its funding activities by 2025 (Farand 2020). All the while, the European Central Bank has announced that it will phase out climate-warming investments in favor of green bonds (Farand 2019).

By the same token, institutional investors are playing an increasingly important role. For instance, the investor initiative Climate Action 100+, which numbers more than 360 investors with more than \$34 trillion worth of assets under management, aims to engage with the major carbon-emitting companies they hold shares in so as to address the climate risk. A Climate Action 100+ shareholder resolution to get BP to demonstrate that its strategy was consistent with the goals of the Paris Agreement was approved by the British oil giant's board and is now



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legally binding (Espiner 2019). Among Climate Action 100+'s influential institutional investors is the Church of England's property asset body, the Church Commissioners; it is worth noting that faith institutions and religious groups form the largest bloc within the global divestment movement (Dodd 2019). By the same token, the insurance sector continues to lead the trend of divestment, with over \$3 trillion in assets committed. In addition, insurance companies are keeping a close eye on how climate change harm is affecting their business interests and appear to be readying themselves to file lawsuits against the fossil fuel industry, seeking to recuperate payouts to policyholders for climate damages (Sullivan 2019).

The American stock guru Jim Cramer affirmed that "I'm done with fossil fuels. They're done" (Pound 2020). Basically, he claimed that fossil fuel stocks have become washouts because the divestment movement is forcing people to dump them. Indeed, after years of hesitation and unheard shareholder resolutions, some funds are trickling out of the oil markets too. Sovereign wealth funds and pension funds are similarly abandoning fossil fuels: Ireland's €8.9 (\$10.1) billion sovereign development fund is committed to divesting from fossil fuels, Norway's \$1 trillion wealth fund divested from 150 companies active in the exploration and production of oil and gas (Davies 2019), and Denmark's MP Pension Fund divested from 24 oil majors an overall value of \$133.9 million (Baker 2020). Similar initiatives are being undertaken by over 100 globally significant financial institutions that have divested from coal, including 40 percent of the top 40 global banks and 20 globally significant insurers (Buckley 2019). One of the world's leading asset managers has even warned that Big Oil's directors must act on climate change; otherwise, they risk being voted out (Greenfield 2019). The asset manager Legal & General Investment Management unsuccessfully tried to convince ExxonMobil—as one of its top twenty shareholders—to better address its climate risk. As a result, in June 2019 Legal & General Investment Management announced that it had divested approximately \$300 million worth of its Exxon shares

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and would use its remaining stake to vote against the reappointment of ExxonMobil chairman and CEO Darren Woods (Giblon 2019). BlackRock, the world's biggest asset management firm, has lost an estimated \$90 billion over the last decade by ignoring the serious financial risk of investing in fossil fuel companies. Multibillion-dollar investments in the world's largest oil companies—including BP, Chevron, ExxonMobil, and Shell—were responsible for the bulk these losses (Ambrose 2019). Additionally, in early 2020 BlackRock announced that it would stop investing in thermal coal (Rowell 2020) and later that it would sell shares in the worst climate polluters, even if it still manages \$85 billion of coal assets and its investment in coal producers with expansion plans exceeds \$24 billion (Cuvelier and Pinson 2021). In the meantime, investment funds that divested from fossil fuels profited not only morally but also in terms of financial return (Sanzillo 2021).

Divestment is an effective strategy for destabilizing Big Oil through the erosion of its material power. It was inspired by the perceived success of the 1980s South Africa divestment campaign to pressure the South African government into ending apartheid. Yet due to the multiple secondary effects and the market and political uncertainties, the ultimate effectiveness of divestment in reducing emissions is up for debate, so the goals of fossil fuels divestment campaigns need to be specified. Contrary to commonsense intuition, divesting merely shifts the ownership of a (publicly traded) company without actually altering the flow of funds in or out of it; as a consequence, in the short term the underlying economics of a company is largely unchanged by even a loudly proclaimed divestment. The company does not suffer major financial loss, and its decision making should in principle remain unchanged. In brief, the market value of the company is irresponsive to divestment, making its short-term effectiveness in *punishing* Big Oil or reducing emissions very limited. The direct impact of divestment—albeit a reduced one—on the valuation of fossil fuel companies can instead be found in changes in market behavior or in constrained debt markets. In the first case, divestment may close off channels of previously available money, thus

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initiating downward pressure on the stock price of a targeted firm. Second, in poorly functioning markets and in countries with low financial depth, divestment can diminish the pool of debt finance for Big Oil and increase discount rates.

It is, however, more useful to understand divestment as a long-term strategy based on the stigmatization of the industry with three main objectives: to force companies to stop the use of fossil fuels, to pressure them to undergo *structural change* that will lead to a drastic reduction in carbon emissions, and to urge governments to pass legislation, such as bans on further drilling or a carbon tax. The divestment stigma generates several negative consequences for oil and gas companies. It can result in customers, suppliers, and potential highly skilled and qualified employees running scared and can induce governments and politicians to engage only with *clean* companies to prevent adverse effects damaging their reputation or endangering their reelection. Shareholders can demand changes in management of companies; stigmatized companies can also be excluded from public tenders, acquiring licenses or property rights for business expansion, or be weakened in negotiations with suppliers and be denied new contracts or mergers/acquisitions. Of far greater significance is the fact that stigmatization can impact Big Oil through new legislation: nearly all non-fossil fuel-related divestment campaigns managed to successfully lobby for restrictive legislation affecting stigmatized firms.

All these factors greatly increase the uncertainty of future cash flows for the stigmatized company, thus compromising its market value and eventually even its operativity: it is this aspect that forms its long-term *punishment*. In synthesis, while divestment campaigns do not seem to have a significant direct impact on reducing emissions, divestment as an institutional strategy can help drum up the necessary support for a climate agreement and effective climate policies in the medium and long term (Ansar, Caldecott, and Tilbury 2013; Braungardt, Bergh, and Dunlop 2019). Divestment causes panic among oil executives, who pool their public relations resources to combat the increasing number of steadfast divestment movements emerging worldwide (Farand 2018). Indeed, the

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previously mentioned guru Jim Cramer, arguing in favor of fossil fuel divestment, compared fossil fuel stocks to the stigma attached to investing in tobacco companies, saying they are in the “death knell phase” and adding, “They’re tobacco. I think they’re tobacco” (Pound 2020).

A final consideration should go to agents hailing from the worlds of both technology and R&D—developing low-carbon technologies and, more broadly, working at the innovation frontier of fuels and energy production—who play a relevant part in destabilizing Big Oil. Without overemphasizing their role—unlike *old-fashioned* innovation studies, which placed great faith in the impact of innovations—they can deliver disruptive low-carbon technologies at a comparable or, increasingly, in some cases, inferior cost to that of consolidated fossil fuel technologies. Alternatively, they can disrupt the fossil fuel world from the inside. For instance, about one thousand Australian engineers and ninety organizations are pressing engineering firms to abandon fossil fuel projects, especially the most controversial coal-related ones (Smee 2019).

### EXOGENOUS SHOCKS AND BIG OIL'S DESTABILIZATION: CLIMATE CHANGE AND FINANCIAL CRISES

According to the 2021 Doomsday Clock Statement of the *Bulletin of the Atomic Scientists*, “the existential threats of nuclear weapons and climate change have intensified in recent years” (Mecklin 2021). Firsthand experiences of the lethal effect of nuclear weapons—from their first tests at the Trinity Site in New Mexico in the United States on July 16, 1945, through to the harrowing massacres of Hiroshima and Nagasaki in early August of the same year to the countless subsequent tests in the atmosphere, underwater, underground, and in outer space—instilled such terror into humanity that between 1965 and 1968, leaders were forced to sign a nuclear nonproliferation treaty that prevented an escalation in the development of nuclear weapons and weapons technology, even at the height of the Cold War standoff.

Continuing with this parallelism, unfortunately, firsthand experience of the impacts of the climate crisis and wider acknowledgment of its dire

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evolution have not so far managed to provoke a similar emotional reaction in humanity or induce decision makers to seriously address climate change. Possibly, increasingly frequent and more extreme weather events may prompt an adequate response to destabilize Big Oil: a climate emergency mobilization of people, technology, and policy is the most likely combination to enact the change required (Gilding 2019). Scientific studies on this eventuality remain, however, inconclusive. For instance, one work (Dixon, Bullock, and Adams 2019) found that emphasizing the role of climate change in natural hazards (hurricanes, wildfires, and blizzards) that resulted in significant loss of life and property produces unintended effects on (American) people, who build up a kind of resistance to the news and a reduction in the perceived severity of the hazard, often dubbed “*compassion fatigue*” and “*apocalypse fatigue*” whereby the limits of emotional attention and empathy are stretched too thin by overexposure to shocking news, events, or calls for support and where a “*seen it all before*” mentality starts to ebb away at initial dismay. Another study (Boudet et al. 2020) evinces that although any single event may have limited impact on discussion or collective action about climate change, what is of vital importance for mobilizing people and spurring action is partisanship and the attribution of the event to climate change. A further study (Bergquist, Nilsson, and Schultz 2019) shows that experiencing climate-related disasters firsthand (the study specifically concerns the experience of the hurricane Irma by residents of Florida) magnifies negative emotions toward climate change, strengthens people’s beliefs that the disaster was actually caused by climate change, and encourages a willingness to make personal sacrifices in order to protect the environment.

More studies are required to be able to uncontroversially presume that the current and prospected impacts of climate change can induce civil society to exogenously shake up the oil complex and destabilize Big Oil—unless, unfortunately, a major global climate-related disaster tips the balance in favor of a radical change in the world order.

From a different perspective, climate change could induce the world economy to spiral into a global financial crisis similar to the one triggered

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in December 2007. Such a crash would be an exogenous factor that could significantly disrupt the oil complex and destabilize Big Oil.

Indeed, nowadays most people accept in principle that climate change threatens financial stability, as a report commissioned by the US Commodity Futures Trading Commission warns (Davenport and Smialek 2020), thus incurring substantial public costs, and that financial regulators (e.g., central banks and governmental financial stability mechanisms) should do their part in safeguarding the financial system against climate change (Tooze 2019). Basically, climate change is causing more unpredictable, frequent, and extreme weather events, damaging property and disrupting trade, while policies to abate emissions and favor green technology have the potential to trigger sharp falls in asset prices of several industries. Providers of financial products cannot easily discharge such risks from their portfolios, an action that could potentially destabilize the entire financial system. At the same time, when—if—humanity eventually decides to stop using fossil fuels, the oil industry, one of the most heavily capitalized industries, could collapse along with demand for its products if the Big Oil is unprepared. In a sense, it is a double-edged sword: if the climate crisis hits the financial world too violently, it could produce a domino effect, shattering Big Oil. But in the reverse scenario, the financial system could also be disrupted by the destabilization of an industry unprepared for too accelerated a shift to a low-carbon world.

The other side of the double-edged sword fundamentally relates to the problem of *stranded assets*, which are fossil fuel supply and generation resources that, prior to the end of their economic life, can no longer produce returns largely as a result of changes associated with the transition to a low-carbon economy. Stranded assets are the core element of the so-called *carbon bubble* because when the reserves of oil and gas companies are deemed environmentally unsustainable, investing in the company implies relying on assets that are unusable and will, at some point, be written off. Currently, the price of these traded companies' shares is calculated on the assumption that all their reserves will be consumed, so

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the true costs of carbon dioxide in intensifying climate change is not taken into account in a company's stock market valuation. In fact, the oil industry risks \$2.2 trillion in stranded assets in a low-carbon world. ExxonMobil is the most exposed to stranded assets, with more than 90 percent of potential capital expenditure up to 2030 failing to comply with the International Energy Agency's 1.6°C pathway, while Shell's risk is 70 percent, TotalEnergies's is 67 percent, Chevron's is 60 percent, BP's is 57 percent, and ENI's is 55 percent (Mace 2019). With regard to NOCs, experts believe that most of Venezuela's carbon-heavy blends of crude will remain stranded in the ground (Stott 2020).

Either way, the financial world must brace itself for climate change, as Kristalina Georgieva, chair and managing director of the International Monetary Fund, forcefully stresses: "Climate change is an existential threat. It is a risk that we all have to take very seriously because from the perspective of an institution that deals with economic matters, it can push back development" (Elliott 2019).

But the financial world has thus far not risen sufficiently to the challenge. While central banks and international financial institutions are under increasing pressure to engage in aiding socioeconomic systems to fight climate change, it is much less clear what their role in avoiding/preventing/coping with a climate-induced global financial crisis should be. Central banks are, for instance, urged to implement a "green quantitative easing" program that involves the purchase of green corporate bonds (Dafermos, Nikolaidi, and Galanis 2018), whereas the Bank of England openly acknowledges that global capital markets are financing projects likely to produce a 4°C temperature rise (Partington 2019). A global network of sixty climate organizations, led by Rainforest Action Network (RAN), issued "*Principles for Paris-Aligned Financial Institutions: Climate Impact, Fossil Fuels and Deforestation*," which offers a timely road map for the decarbonization of the finance sector to align with the Paris Agreement (RAN et al. 2020).

The Network for Greening the Financial System, a global coalition of central banks and supervisory authorities advocating a more sustainable

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financial system, has urged its members to collect better data to gauge the extent of the climate risk and to advance sustainability within their own portfolios. For instance, Christine Lagarde announced that climate change would be firmly put on the European Central Bank's agenda, stating at a confirmation hearing before a European Parliament committee in Brussels that "climate change is one of the most pressing global challenges facing society today. My personal view is that any institution has to actually have climate change risk and protection of the environment at the core of their understanding of their mission" (Alderman 2019). This claim is indeed reinforced by the backing of European Union finance ministers, who urge closing the tap to funding for fossil fuels altogether (Guarascio 2019), followed by the trailblazing decision of the European Investment Bank reported above and by commercial banks increasingly distancing themselves from fossil fuel investments.

The ultimate objective of these initiatives is to avoid a sudden collapse of asset prices. And here the double-edged sword problem raises its head again, and it is a spectacular sword of Damocles in both case scenarios: a financial crisis could seriously undermine Big Oil's stability, but given the still huge overall market capitalization of oil and gas companies, their financial contraction should be careful and gradual to avoid the spectacle of witnessing the crash of the entire financial system. These reasons are in addition to those offered in chapter 6 of why a *gradual transition* scenario, whereby the phasing out of the industry's operations and products should proceed progressively, is preferable to an abrupt one, which would see an immediate dissolution of fossil fuel-related activities and thus of the industry as a whole.



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# From Big Oil to Big Green

## Holding the Oil Industry to Account for the Climate Crisis

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