NATIONAL FOSSIL FUEL COMPANIES AND CLIMATE CHANGE MITIGATION UNDER INTERNATIONAL LAW

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ABSTRACT

Politics and research on climate change mitigation have often focused on the regulatory function of the state. This article explores the function of the state as an investor and shareholder, taking the particular example of the fossil fuel sector. National Fossil Fuel Companies (NFFCs) are state-owned enterprises that control most of the production of petroleum, gas and coal, possess most of the reserves, and leverage most of the investments, thus forming an integral part of the superstructure of the global carbon economy. Occasionally these companies are so deeply enmeshed with their owner governments that their conduct can be directly attributed to the state, possibly entailing state responsibility under international law when they cause excessive greenhouse gas emissions. But even when the corporate veil precludes attribution of NFFC's actions to the state, this article suggests that certain obligations arise from general international law and from the specific regime created by the UN Framework Convention on Climate Change in relation to state ownership policies in the fossil fuel sector. Thus, although not advocating for general divestment, we suggest that states should – and are increasingly required to – use their leverage as investors and shareholders to facilitate a transition to a greener economy.

INTRODUCTION

International climate change law has generally focused on the rights and obligations of states rather than those of private actors. Yet, most greenhouse gas emissions do not emanate directly from the conduct of the state, but from activities conducted by individuals and corporations. The legal personality of private actors is not generally recognized in international law, despite recent developments toward the definition of the non-state actor's international legal obligations[1] and moral arguments for individual or corporate responsibilities.[2] This issue of attribution of

1. *See, e.g.*, Human Rights Council (HRC), Guiding Principles on Business and Human Rights: Implementing the United Nations "Protect, Respect and Remedy" Framework, U.N. DOC. A/HRC/17/31 (Mar. 21, 2011); *see* MATH NOORTMANN, AUGUST REINISCH & CEDRIC RYNGAERT, NON-STATE ACTORS IN INTERNATIONAL LAW (2015).

2. *See, e.g.*, POPE FRANCIS, ENCYCLICAL LETTER LAUDATO SI' OF THE HOLY FATHER FRANCIS ON CARE FOR OUR COMMON HOME (May 24, 2015); Su-Yol Lee, *Corporate Carbon Strategies in Responding to Climate Change*, 21 BUS. STRATEGY AND THE ENV'T 33, 34-39

conduct is generally overcome by interpreting states' obligations relating to climate change as imposing a due diligence obligation to regulate the conduct of private actors within their jurisdiction. Thus, in international environmental law, the no-harm principle – the obligation for states to *refrain* from activities that would cause significant cross-boundary environmental damage[3] – has long been interpreted to create an obligation for states to *prevent* private actors from conducting such activities.[4] Similarly, the UN Framework Convention on Climate Change (UNFCCC) created a specific legal regime that defines obligations for states to limit or reduce greenhouse gas emissions emanating from private actors within their jurisdictions.[5]This article explores an alternative pathway for the attribution of excessive greenhouse gas emissions to states and a complementary series of measures that states could take to tackle climate change. More specifically, this article looks beyond the obligation of states to prevent excessive greenhouse gas emissions by private actors within their jurisdictions, and it suggests that states also have obligations as economic actors. Emphasis is thus put on states' leadership, rather than regulatory functions. In particular, this article focuses on the role of states as investors and shareholders in the fossil fuel sector. What we call the National Fossil Fuel Companies (NFFCs)[6] include enterprises that are partly or fully owned by states and whose main activity relates to the discovery, extraction, refining and distribution of fossil fuels (petroleum, gas and coal) or sub-products.[7]

(2012).

3. *See infra* note 30.

4. *See generally* Iron Rhine ("Ijzeren Rijn") (Belg. v. Neth.), 27 R.I.A.A. 37, 116 para. 222 (Per. Ct. Arb. 2005); PHILIPPE SANDS & JACQUELINE PEEL, PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW (3rd Ed.2012); Jacqueline Peel, *The Practice of Shared Responsibility in Relation to Climate Change* 71 AMSTERDAM CTR. FOR INT'L L. 1, 17 (2015) (showing this approach appears clearly in the wording of principle 21 of the Stockholm Declaration of the U.N. Conference on the Human Environment and the Principle 2 of the Rio Declaration on Environment and Development, as well as in the Trail Smelter arbitral award. *Infra* note 27, among others).

5. U.N. Framework Convention on Climate Change, S. Treaty Doc No. 102-38, 1771 U.NT.S. 107 (May 9, 1992) [hereinafter UNFCCC]. See in particular UNFCCC, art. 4(1) (b), (2) (a).

6. This concept relates clearly to that of "national oil companies", often understood to include gas and coal companies.

7. NFFCs is not a legal concept with a strict definition. It refers to a social phenomenon, to which the legal treatment depends on specific conditions of ownership and control. It is generally understood that a state-owned entity is a company in which the state has a majority ownership. We include entities owned by other public entities as NFFCs, for instance subsidiaries of state-owned enterprises or enterprises owned by a provincial government. We are also interested in minority state ownership as part of a related phenomenon of public investment in the fossil fuel sector, but we do not consider corporations that do not have a majority state ownership as NFFCs.

While private corporations pioneered the production of coal, petroleum and gas, state ownership has been instrumental to the dramatic expansion of these sectors during most of the 20th Century.[8] Today, the International Energy Agency (IEA) estimates that companies fully or majority-owned by governments, and their host governments, own "around 80% of proven-plus-probable oil reserves and 60% of natural gas reserves" and account for over 40% of global upstream investment.[9] The U.S. Energy Information Administration (EIA) considers that "government-owned national oil companies" were at the origin of 58% of global oil production in 2014.[10] Consistently, a major comparative study attributes 61% of current global oil production and 52% of gas production to state-owned enterprises.[11] As for coal, state-owned companies control 9% of the production capacity in the Organization for Economic Co-operation and Development (OECD), but 66% outside of the OECD – with particularly high shares in China, India and Vietnam.[12] Crucially, recent studies have shown that about a third of current industrial carbon dioxide and methane emissions, and 20% of such emissions since 1751, could be traced to just 31 NFFCs.[13]

These figures naturally raise questions as to states' climate change responsibilities, not just for failing to prevent private actors from producing excessive greenhouse gas emissions within their jurisdiction, but also for their own active role in developing and maintaining the

8. *See generally* U.N. CTR. FOR NAT. RESOURCES, ENERGY AND TRANSPORT, STATE PETROLEUM ENTERPRISES IN DEVELOPING WORLD 28-29 (1980).

9. *Id.*; INT'L ENERGY AGENCY (IEA), WORLD ENERGY INVESTMENT OUTLOOK 53 (2014). Upstream investments are the investments that relate to exploration and production, as opposed in particular to transportation and refining. *Id.*

10. US ENERGY INFO. ADMIN., ENERGY IN BRIEF, WHO ARE THE MAJOR PLAYERS SUPPLYING THE WORLD OIL MARKET? 2014, *available at* http://www.eia.gov/energy_in_brief/article/world_oil_market.cfm (last visited Nov. 14, 2016).

11. DAVID VICTOR, DAVID HULTS & MARK THURBER, OIL AND GOVERNANCE: STATE-OWNED ENTERPRISES AND THE WORLD ENERGY SUPPLY 3 (2012). This is a relatively conservative estimate. By contrast, the Economist estimated that "[t]hree quarters of the world's crude-oil reserves are owned by national oil companies," while "convention multinationals control just 3% of the world's reserves." *See The Growth of the State, Leviathan Stirs Again*, ECONOMIST 23 (Jan. 23, 2010), *available at* http://www.economist.com/node/15328727 (last visited Jan. 27, 2017). Due to the immense size of oil and gas sector and to differences in working definitions and in methods, precise data are hard to derive, explaining some variations between estimates. *Id.*

12. IEA, *supra* note 9, at 56-57 (noting that the IEA analysis based on Wood Mackenzie databases).

13. *See* Richard Heede, *Carbon Majors: Accounting for Carbon and Methane Emissions 1854-2010: Methods and Results Report*, CLIMATE MITIGATION SERV. 30 (2014), *available at* http://carbonmajors.org/wp/wp-content/uploads/2014/04/MRR-9.1-Apr14R.pdf (last visited Nov. 13, 2016).

superstructure of a carbon-intensive economy.[14] Overall, they suggest a complementary policy entry point for climate change mitigation. Through their NFFCs, states have the opportunity to trigger meaningful changes more rapidly and more directly than through regulating the conduct of private actors.[15] More responsible NFFCs could realistically make a difference on the short- to medium-term, for instance, by committing to substantial sectorial mitigation efforts; to a selection of fossil fuels and production modes taking into consideration their differing global environmental impact; to investing in the development of carbon capture and storage technologies; to providing a proportion of biofuels and renewable energies. Beyond that, an indispensable,[16] although presently unrealistic, step would be for NFFCs to renounce the exploitation of a share of their reserves.[17]

The actual and possible role of NFFCs in climate change mitigation have remained mostly unexplored in the literature and eluded in international climate change negotiations.[18] Within the international law of state responsibility, the binary test of attribution is generally ill suited

14. By "carbon intensive," in this article, we refer to economic models or practices that produce excessive greenhouse gas emissions (in particular, but not only, CO2). Less carbon-intensive economic models or practices would be able to provide a similar level of human or economic development without producing as many greenhouse gas emissions.

15. *See* Can Wang, Yuan Yang & Junjie Zhang, *China's Sectoral Strategies in Energy Conservation and Carbon Mitigation*, 15 CLIMATE POL'Y, NO. S1, S60, S67 (2015) (noting the role of state-owned enterprises in making a national energy efficiency program a success. The article points however at specific social costs of such "command-and-control" measures, for instance on job market and electricity production, which resulted in some black-outs triggered by entrepreneurs with the sole goal of meeting the objective of a reduction in energy consumption. These perverse incentives, however, are not all proper to "command-and-control" measures as the authors suggest, and better "command-and-control" measures could obviously address them in a more effective manner. As a matter of fact, a market-based mechanism may actually leave even less leeway to take other considerations into account and, for instance, protect employment opportunities).

16. Scientific evidence compiled by the IPCC leaves no doubt that a large proportion of known fossil fuel reserves need to remain in the ground if a catastrophic climate change is to be avoided. *See* Intergovernmental Panel on Climate Change (IPCC), *Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* (2014), *available at* http://www.ipcc.ch/report/ar5/syr/ (last visited Nov. 13, 2016).

17. Filip Johnsson & Jan Kjärstad, *Regional Distribution of Renewable Energy and the Abundance of Fossil Fuels*, *in* CLEAN COAL TECHNOLOGY AND SUSTAINABLE DEVELOPMENT 18 (Guangxi Yue & Shuiqing Li eds., 2016).

18. One of the most relevant provisions can be found in the Paris Agreement, art. 6(8), which recognizes "the importance of integrated, holistic and balanced non-market approaches" which shall aim, *inter alia*, to "enhance public and private section participation in the implementation of nationally determined contributions." *See* Framework Convention on Climate Change, *Adoption of the Paris Agreement*, art. 6, U.N. Doc. FCCC/CP/2015/L.9/Rev.1 (Dec. 12, 2015).

to the ambivalent status of NFFCs, somewhere between public and private entities.[19] Likewise, international efforts on climate change mitigation have, by and large, assumed a split between the state as a regulator, and economic activities carried out by private entities.[20] Following the leadership of the European Union, emissions trading schemes have often been encouraged as a market-based mitigation mechanism through which states could induce private actors to reduce their greenhouse gas emissions.[21] But if such mechanisms could swiftly apply to Western states where relevant sectors are strongly dominated by private actors,[22] they may not adapt as straightforwardly to the context of emerging economies such as China's socialist market economy.[23] The treatment of states as investors and shareholders suggested in this article reveals the possibility of complementary mitigation policies that may be more efficient in particular states or sectors.

This article starts by providing a more thorough overview of states' obligations to mitigate climate change and their involvement in the fossil fuel sector. Then, section two explores the possibility of attributing the conduct of NFFCs directly to the state under customary international law, as well as jurisdictional practice in investment treaty arbitration and human rights litigation. Section three turns to a discussion of state ownership in the fossil fuel sector in relation to specific obligations arising from the UNFCCC regime, or more generally, from the no-harm principle. Finally, section four highlights some possible ways for states to come to terms with their involvement in the fossil fuel sector,

19. David R. Hults, Hybrid Governance: State Management of National Oil Companies, *in* OIL AND GOVERNANCE: STATE-OWNED ENTERPRISES AND THE WORLD ENERGY SUPPLY 62-66 (Victor, Hults and Thurber eds., 2012).

20. For instance, it was noted that the Clean Development Mechanism – which extends to public entities – was designed "with the private sector in mind." United Nations Conference on Trade and Development (UNCTAD), *An Implementation Guide to the Clean Development Mechanism*, 20 UNCTAD/DITC/TED/2003/1 (2003).

21. *See, e.g.*, Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, U.N. Doc FCCC/CP/1997/7/Add.1, 37 I.L.M. 22 (1998) [hereinafter Kyoto Protocol] (establishing a basis for emissions trading, regulated by subsequent COP decisions); U.N. Framework Convention on Climate Change, ¶1(b)(v), U.N. Doc. FCCC/CP/2007/6/Add.1 (Mar. 14, 2008) [hereinafter Bali Action Plan] (encouraging consideration for "various approaches, including opportunities for using markets, to enhance the cost-effectiveness of, and to promote, mitigation actions").

22. *See* Council Directive 2003/87/EC, art. 3(f), 2003 O.J. (L 275/32) 1,3 (EC) (establishing a scheme for greenhouse gas emission allowance trading within the Community, in particular art. 3(f), not including any specification of the private or public character of an "operator").

23. *See, e.g.*, STEFAN E. WEISHAAR, EMISSIONS TRADING DESIGN: A CRITICAL OVERVIEW 37 (Kurt Deketelaere et al. eds., 2014); CLAYTON MUNNINGS ET AL., ASSESSING THE DESIGN OF THREE PILOT PROGRAMS FOR CARBON TRADING IN CHINA 10-11 (2014).

suggesting that sovereign investors and shareholders could exert leadership in a transition toward a green economy. It is followed by a brief conclusion.

I. BACKGROUND: STATES' CLIMATE CHANGE RESPONSIBILITIES AND NFFCS

A. Climate change, state responsibilities, and state-owned enterprises

The Fifth Assessment Report of the Intergovernmental Panel on Climate Change reflected one more time the consensus of the global scientific community that our climate is changing as a result of human activities.[24] Responsibility for climate change can be approached at multiple levels: individuals, corporations, states, etc. Although individual duties are perhaps more persuasive from an ethical viewpoint, they lead to problematic legal or political arguments.[25] First, it would be difficult to disentangle individual responsibilities, in particular because greenhouse gas emissions directly attributable to one individual are largely path-dependent and contingent to gradual collective decisions. Public investments in transport infrastructures, for instance, impact our individual consumption of greenhouse gases. Secondly, establishing individual responsibility would come in tension with the established practice in international relations of recognizing sovereign states' legal personality and jurisdiction over their populations. General international law is based on the legal fiction of state responsibility and state injury for the harms inflicted to its nationals.[26] Individual or corporate responsibility could eventually be raised in domestic fora, but states remain the most relevant focus for climate change responsibilities in

24. LISA V. ALEXANDER ET AL., CLIMATE CHANGE 2013: THE PHYSICAL SCIENCE BASIS, SUMMARY FOR POLICY MAKERS 17 (Thomas F. Stocker et al. eds. 2013).

25. *See generally* Alexander Zahar, *Mediated versus Cumulative Environmental Damage and the International Law Association's Legal Principles on Climate Change*, 4 CLIMATE L. 217 (2014); Benoit Mayer, *The Applicability of the Principle of Prevention to Climate Change: A Response to Zahar*, 5 CLIMATE L. 1, 3 (2015); Alexander Zahar, *Methodological Issues in Climate Law*, 5 CLIMATE L. 25 (2015).

26. *See* Mavrommatis Palestine Concessions (Greece v. United Kingdom), Judgment, 1924 P.C.I.J. (ser. A) No. 2, at 12 (Aug. 30, 1924). The Court held that a state claiming reparation for the harm inflicted to its national should be assumed to be "asserting its own right"; *but see* ERIC POSNER & DAVID WEISBACH, CLIMATE CHANGE JUSTICE 114 (2012) (arguing that, although climate change could raise individual responsibilities, it should not lead to findings of collective responsibilities: "Even if one could conclude that the U.S. government behaved negligently, it does not follow that the American people should be held responsible for their government's failures." This relies on an arbitrary departure from international law, where it is generally admitted that the action of a state organ entails the responsibility of the state).

global climate change governance.[27]

The UN Framework Convention on Climate Change (UNFCCC), the Kyoto Protocol (along with its 2012 "Doha" amendment, pending adoption), and the Paris Agreement all try to define specific obligations for states to mitigate climate change by reducing domestic greenhouse gas emissions.[28] Beyond the UNFCCC regime, a reasonable argument can be made for the responsibility of states for their failure to prevent excessive greenhouse gas emissions within their jurisdictions,[29] based on the general due diligence obligation of states to prevent activities within their jurisdictions that cause significant cross-boundary environmental damage.[30] There is no denying, that states, especially industrialized ones, urgently need to regulate the conduct of private actors in order to reduce greenhouse gas emissions within their jurisdiction. Yet, this emphasis on the due diligence obligation of states risks suggesting a wrong representation of the latter as passive bystanders progressively becoming knights of virtue. States – industrial ones in particular – have been more than complacent, and often clearly "complicit" when actively supporting the development of the carbon economy.[31] Far from neutral, and despite their collective engagement in favor of climate change mitigation, many states continue, to date, to subsidize the use of fossil fuels in multiple ways, ranging from direct cash payments to fossil fuel companies to road expansion and maintenance.[32] Many NFFCs are central to the economy

27. *See, e.g.*, JOHN KNOX, THE UN GUIDING PRINCIPLES ON BUSINESS AND HUMAN RIGHTS, *The Ruggie Rules: Applying Human Rights Law to Corporations* (Radu Mares, ed. 2012) (illustrating parallels on responsibility of individuals or companies in other fields of international law, such as international criminal law or human rights law).

28. Doha Amendment to the Kyoto Protocol, art. 3 ¶ 9 (adopted through decision 1/CMP.8) (2012) [hereinafter the Doha Amendment].

29. *See* INTERNATIONAL LAW ASSOCIATION, LEGAL PRINCIPLES RELATING TO CLIMATE CHANGE, art. 7A (2014); Benoit Mayer, *State Responsibility and Climate Change Governance: A Light through the Storm*, 13 CHINESE J. INT'L L. 539, 541 (2014) [hereinafter ILA]; Christina Voigt, *State Responsibility for Climate Change Damages*, 77 NORDIC J. INT'L L. 1, 4, 7-8 (2008); RODA VERHEYEN & PETER RODERICK, BEYOND ADAPTATION: THE LEGAL DUTY TO PAY COMPENSATION FOR CLIMATE CHANGE DAMAGE 6, 13, 21 (2008).

30. *See, e.g.*, Trail Smelter (U.S. v. Can.), III R.I.A.A. 1905, 1965 (1941) (elaborating on the no harm principle); Conference on the Human Environment, *Report of the United Nations*, principle 21, U.N. Doc. A/CONF.48/14/Rev.1 (1972); Conference on the Human Environment, *Report of the United Nations* ("Rio Declaration on Environment and Development"), principle 2, U.N. Doc. A/CONF.151/26 (Vol. I) (1992); Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 I.C.J. Rep. 226, ¶ 29 (July 8); *see, e.g.*, Mayer, *supra* note 25, at 4 (citing a possible objection based on the lex specialis principle).

31. H. Damon Matthews, *Quantifying historical carbon and climate debts among nations*, 6 NAT. CLIM. CHANG. 60, 60-61 (2015).

32. *See, e.g.*, Council on Foreign Relations, *Fuel Subsidy Reform*, MAURICE R GREENBERG CENTER FOR GEOECONOMIC STUDIES, COUNCIL ON FOREIGN RELATIONS: FUEL

of the state that owns them, and while they generally bring economic benefits to their national economy,[33] NFFCs have greatly contributed to the occurrence of climate change, with far-reaching consequences for the least developed and most vulnerable countries.[34]

The present article aims to shed light on states' involvement, through ownership, in the superstructure of a global carbon-intensive economy. It does so by focusing on one essential aspect of this involvement: state investment and shareholding in the fossil fuel sector. As noted above, state ownership in this sector is substantial, and state-owned entities possess more than two-thirds of the global reserves of oil and gas.[35] Its consequences are far-reaching. A recent study by Richard Heede has shown that 20% of historical carbon dioxide and methane emissions could be traced to 31 state-owned entities, and 22% to 50 investor-owned "carbon majors."[36] Three NFFCs – Saudi Aramco, Gazprom and National Iranian Oil Company – were particularly shown to have provided the fuels that led to more than 2% of global historical carbon dioxide and methane emissions each.[37] Around 4% of current greenhouse gas emissions can be traced to the fossil fuels produced by either Saudi Aramco or Gazprom (see table 1).[38]

Table 1. Greenhouse gas emissions traceable to selected NFFCs[39]

NFFC	Current (% of global, 2010)	Historical (% of global)	Share of state ownership
Saudi Aramco	4.3 %	3.2 %	100 %
Gazprom	3.8 %	2.2 %	50.2 %
National Iran Oil	2.4 %	2.0 %	100 %

SUBSIDY REFORM (2015); ELIZABETH BAST ET AL., THE FOSSIL FUEL BAILOUT: G20 SUBSIDIES FOR OIL, GAS AND COAL EXPLORATION 24 (2014); BASSAM FATTOUH & LAURA EL-KATIRI, ENERGY SUBSIDIES IN THE ARAB WORLD, ARAB HUMAN DEVELOPMENT REPORT 17 (2012*); see also infra*, note 257-258.

33. For a more nuanced picture, *see, e.g.*, ESCAPING THE RESOURCE CURSE (Macartan Humphreys, Jeffrey D Sachs & Joseph E Stiglitz eds., 2007) [hereinafter Humphreys et al.].

34. Peter C. Frumhoff, Richard Heede & Naomi Oreskes, *The Climate Responsibilities of Industrial Carbon Producers*, 132 CLIM. CHANGE 157, 161-162 (2015).

35. *See* IEA, *supra* note 9; *see also* US ENERGY INFORMATION ADMINISTRATION, *supra* note 10*; see also* VICTOR, HULTS & THURBER, *supra* note 11.

36. Heede, *supra* note 13.

37. Richard Heede, *Tracing Anthropogenic Carbon Dioxide and Methane Emissions to Fossil Fuel and Cement Producers, 1854-2010*, 122 CLIMATIC CHANGE 229, 237 (2014).

38. *See* Heede, *supra* note 13, at 30.

39. Heede, *supra* note 37, at 237.

Pemex	1.7 %	1.4 %	100 %
PD Venezuela	1.4 %	1.1 %	100 %
Coal India	2.3 %	1.1 %	79.7 %
PetroChina	1.7 %	0.7 %	86.4 %
Kuwait Petroleum	0.9 %	0.7 %	100 %
Abu Dhabi NOC	1.1 %	0.7 %	100 %
Sonatrach	1.1 %	0.6 %	100 %
Petrobras	0,9 %	0.4 %	54 %
Rosneft	1,0 %	0.2 %	69.5 %

States' involvement extends beyond majority shareholding. States have, for instance, been involved as minority shareholders in several investor-owned "carbon majors."[40] Kuwait Investment Office, for example, acquired over a fifth of BP's shares in the late 1980s, although the British government later pushed it to decrease its stake in the company.[41] About 3.5 % of BP's capital is still owned by Norwegian and Kuwaiti sovereign wealth funds.[42] Similarly, Norwegian sovereign wealth fund owns significant number of shares in Royal Dutch and Total (see table 2).[43] Some currently privately-owned carbon majors used to be public entities, such as BP and Total, though both were privatized, in the 1980's and 1990's, respectively.[44]

40. *See, e.g.*, Norges Bank Investment Management, HOLDINGS (2016), *available at* https://www.nbim.no/en/the-fund/holdings/ (last visited Nov. 12, 2016).

41. *See, e.g.*, DAVID GAUKRODGER, FOREIGN STATE IMMUNITY AND FOREIGN GOVERNMENT CONTROLLED INVESTORS 48 (2010) *available at* http://www.oecd.org/daf/inv/investment-policy/WP-2010_2.pdf (last visited Nov. 14, 2016).

42. The stake of the Norwegian sovereign fund is currently 1.65 %, while the Kuwait Investment Office holds a stake of 1.8 %. *See* Norges Bank Investment Management, *supra* note 40; SWFI, NORWAY'S SWF TO VOTE ON CLIMATE CHANGE DISCLOSURE FOR BP AND SHELL (2015), *available at* http://www.swfinstitute.org/swf-article/norways-swf-to-vote-on-climate-change-disclosure-for-bp-and-shell/ (last visited Nov. 12, 2016).

43. Norges Bank Investment Management, *supra* note 40.

44. State investments were retrieved from NASDAQ, Morningstar, and public disclosure documents mid-2016.

Table 2. Examples of state investments in large fossil fuel companies[45]

Investor state	Investee company	State investment (% of capital	Current GhG emissions (% of global, 2010)	Historical GhG (% of global)
Norway	Chevron	0.8 %	1.2 %	3.5 %
	ExxonMobil	1.6 %	1.8 %	2.5 %
	Royal Dutch Shell	2.4 %	1.3 %	2.1 %
	British Petroleum	1.9 %	1.5 %	2.5 %
	ConocoPhillips	1.4 %	1.0 %	1.2 %
	Total	2.0 %	1.1 %	0.8 %
Qatar	Royal Dutch Shell	4.6 %	1.3 %	2.1 %
	Total	3 %	1.1 %	0.8 %
Kuwait	British Petroleum	1.8 %	1.5 %	2.5 %

B. Understanding State involvement in the fossil fuel sector

The development of coal production since the late 18th Century, and that of oil production a century later, was mostly the fruit of private companies.[46] NFFCs appeared progressively during the 20th Century through two main trends. First, the investments of Western companies in developing countries were nationalized, particularly in the petroleum sector.[47] This trend started early (Romania in 1900) and developed in the context of regime changes (USSR in 1917) or reforms of socialist inspiration (Chile in 1927, then Uruguay, Peru, Bolivia and Mexico in the 1930s); however, nationalizations only reached their full maturity in the context of decolonization in the 1960's and 1970's.[48]

45. Heede, *supra* note 37. State investments were retrieved from NASDAQ, Morningstar, and public disclosure documents. *Id.*

46. *See generally* UNITED NATIONS CENTRE FOR NATURAL RESOURCES, ENERGY AND TRANSPORT, STATE PETROLEUM ENTERPRISES IN DEVELOPING WORLD 28-29 (1980).

47. *See e.g.* SILVANA TORDO, BRANDON TRACY & NOORA ARFAA, NATIONAL OIL COMPANIES AND VALUE CREATION 16-20 (2011), *available at* http://siteresources.worldbank.org/INTOGMC/Resources/9780821388310.pdf (last visited Nov. 12, 2016).

48. *See generally* UNITED NATIONS CENTRE FOR NATURAL RESOURCES, ENERGY AND

Second, states made massive investments in the fossil fuel sector, initially in developed states (starting in the 1920's), then also emerging economies during the second half of the 20th Century.[49] These investments aimed to foster the development of a sector deemed to be strategically important both for national economic development and also for energy independence.[50] France (Compagnie Française des Pétroles, 1924) and Italy (Azienda Generale Italiana Petroli, or Agip, 1926) were the pioneers, followed by the United Kingdom (British Coal, 1946), Norway (Statoil, 1972) and Canada (Petro-Canada, 1975).[51] The creation of state-owned companies in India (e.g. Oil and Natural Gas Corporation or ONGC in 1961, India Coal in 1975) was also largely aimed at developing a strategic economic sector.[52] Likewise, while China has opened up large parts of its economy to private investments, it has considered the production of fossil fuels as one of a few strategic industries, which it aims to maintain under full state ownership and absolute control.[53] In general, such NFFCs communicated symbolic, political and economic importance that made state-owned companies into vehicles for national ownership through the control and management of the petroleum, gas and coal industries.[54]

TRANSPORT, STATE PETROLEUM ENTERPRISES IN DEVELOPING WORLD 28-47 (1980); Christopher Cumo, *Oil Nationalization*, XIABING LI & MICHAEL MOLINA, OIL: A CULTURAL AND GEOGRAPHIC ENCYCLOPEDIA OF BLACK GOLD 254 (2014).

49. *See generally* Alain Beltran, *A Comparative History of National Oil Companies. Introduction.*, *in* A COMPARATIVE HISTORY OF NATIONAL OIL COMPANIES 9 (Alain Beltran ed., 2010).

50. This relates to a general trend in state ownership in "support for broad . . . economic and strategic goals in the national interest" among the Organisation for Economic Co-operation and Development (OECD) member countries. *See* OECD GUIDELINES ON CORPORATE GOVERNANCE OF STATE-OWNED ENTERPRISES Annotations to Chapter I (2015), *available at* http://www.oecd.org/daf/ca/OECD-Guidelines-Corporate-Governance-SOEs-2015.pdf (last visited Nov. 12, 2016).

51. *See generally* Pier Angelo Toninelli, *Energy Supply and Economic Development in Italy. The Role of the State-owned Companies*, *in* A COMPARATIVE HISTORY OF NATIONAL OIL COMPANIES 125 (Alain Beltran ed., 2010) and Martin Chick, *Oil, National Security and Fuel Policy in France and United Kingdom*, *in* A COMPARATIVE HISTORY OF NATIONAL OIL COMPANIES 181 (Alain Beltran ed., 2010).

52. Xu Yi-chong, *Coal India Limited: The Last One Standing*, THE POLITICAL ECONOMY OF STATE-OWNED ENTERPRISES IN CHINA AND INDIA 49-51 (Xu Yi-chong ed., 2012).

53. *See* MIKAEL MATTLIN, THE CHINESE GOVERNMENT'S NEW APPROACH TO OWNERSHIP AND FINANCIAL CONTROL OF STRATEGIC STATE-OWNED ENTERPRISES 16 (2007), *available at* www.suomenpankki.fi/bofit_en/tutkimus/tutkimusjulkaisut/dp/Documents/dp1007.pdf (last visited Nov. 13, 2016); *see also* Monique Taylor, *China's Oil Industry: 'Corporate Governance with Chinese Characteristics'*, THE POLITICAL ECONOMY OF STATE-OWNED ENTERPRISES IN CHINA AND INDIA 90 (Xu Yi-chong ed., 2012).

54. Thomas Wälde, *International Energy Investment*, 17 ENERGY L. J. 191, 195 (1996).

In a partial change of trajectory, the last three decades have witnessed a relative reflux toward privatization in Western countries, epitomized by the privatization of British Coal in 1994, Total in the early 1990s, Petro-Canada in 2009, along with partial privatizations of several other companies.[55] This reflects, in large part, an ideological shift and a growing confidence in the efficiency of the market, but the trend was sometimes accelerated by a need for liquidity.[56] While this trend remains prevalent in the Western world, its global effect has been balanced by the rapid ascent of China, India and other developing economies where significant state ownership is maintained.[57] As a consequence, the importance of NFFCs in the global fossil fuel industry has not dwindled.[58]

Whether through nationalization or endogenous development, state ownership of fossil fuel companies has been seen as a vehicle of national policies ranging from domestic policies of development to international policies of independence or influence.[59] Thus, many NFFCs have been conceived by lawmakers to be at the service of national interests. Many NFFCs were granted special status under domestic law, often including a domestic monopoly on some aspects of fossil fuel production.[60] Meanwhile, the commercial status of NFFCs has facilitated cooperation with private companies, provided a certain buffer against political turbulence, and, in general, given these entities a degree of flexibility and maneuverability.[61]

55. TORDO ET AL., *supra* note 47, at 15-22.

56. *See generally*, Pier Angelo Toninelli, *The Rise and Fall of Public Enterprise: The Framework*, THE RISE AND FALL OF STATE-OWNED ENTERPRISE IN THE WESTERN WORLD 3 (Pier Angelo Toninelli ed., 2000); for more specific analyses of privatization in the energy sector, *see e.g.*, Thomas Wälde, *Restructuring and Privatization Viable Strategies for State Enterprises Developing Countries?*, 1 UTILITIES POL'Y 412 (1991); John Rhea, *Privatization in the International Petroleum Industry: The Interplay between Politics, Economics, and Reliance*, 33 DENVER J. INT'L L. & POL'Y 609 (2004); TORDO ET AL *supra* note 47, at 15-22.

57. *See, e.g.*, ALDO MUSACCHIO & SERGIO LAZZARINI, REINVENTING STATE CAPITALISM. LEVIATHAN IN BUSINESS, BRAZIL AND BEYOND (2014).

58. *See* IEA, *supra* note 9, at 31-33.

59. *See* Alvaro Cuervo-Cazurra et al., *Governments as Owners: State-Owned Multinational Companies*, 45 J. INT'L BUS. STUD. 919, 933 (2014) (reflecting that Venezuelan PDVSA, for example, has been required to sell subsidized oil to Cuba, Jamaica, Haiti and Nicaragua); *see generally*, OECD, STATE-OWNED ENTERPRISES IN THE DEVELOPMENT PROCESS (2015).

60. One such example is the legislation pertaining to Mexican Pemex, according to which "[t]he State shall carry out the activities exclusively entrusted to it in the strategic areas of petroleum, hydrocarbons and basic petrochemicals, through Petróleos Mexicanos." S*ee* Law of Petróleos Mexicanos, art. 2 (Oct. 20, 2008) *available at http*://www.ri.pemex.com/files/content/Law%20of%20Petroleos%20Mexicanos%20_version%20ingles_.pdf (last visited Nov. 11, 2016).

61. *See* Alastair Lucas, *State Petroleum Corporations: The Legal Relationship with the State*, 3 J. ENERGY & NAT. RESOURCES L. 81, 84 (1985) (discussing the motivation for the

All NFFCs assume commercial functions and share many characteristics with privately owned companies, while being owned and, to a various extent, controlled by a state. Beyond these essential features, however, NFFCs vary immensely: they differ in size, legal status, organization, and functioning modality. While some NFFCs are *fully* owned by a single state (e.g. Kuwait Petroleum Corporation),[62] others are listed in stock exchanges and have a strong minority shareholder presence – in some cases even by other states – (e.g. Petrobras).[63] Likewise, some NFFCs are deeply embedded within states' bureaucratic structures (e.g. Sonatrach),[64] while others retain considerable autonomy, despite extensive state ownership (e.g. Saudi Aramco).[65] In any case, states remain influential because of their ability to leverage funds and to use their formal shareholder power tied to corporate equities.

C. Situating NFFCs in the superstructure of the global carbon-intensive economy

NFFCs and other state investments in the fossil fuel sector are only the tip of the iceberg. States' involvement in the superstructure of a global carbon-intensive economy extends to other carbon-intensive sectors. The Chinese production of cement, which represents more than half of global production and is dominated by large state-owned enterprises, accounts for more than 3.5% of current global greenhouse gas emissions.[66] Many other states have maintained full or partial ownership in national air carriers,[67] power generation,[68] and steel

creation of Petro-Canada as a state-owned corporation).

62. Paul Stevens, *Kuwait Petroleum Corporation (KPC): an enterprise in gridlock Oil and governance*, *in* OIL AND GOVERNANCE: STATE-OWNED ENTERPRISES AND THE WORLD ENERGY SUPPLY 334, 368-70 (Victor, Hults and Thurber eds., 2012).

63. The Norwegian Government Pension Fund Global owns approximately 1.1 % of Petrobras' shares. Adilson de Oliveira, *Brazil's Petrobras: Strategy and Performance*, *in* OIL AND GOVERNANCE: STATE-OWNED ENTERPRISES AND THE WORLD ENERGY SUPPLY 515, 551-53 (Victor, Hults and Thurber eds. 2012).

64. John P. Entelis, *Sonatrach: the political economy of an Algerian state institution*, *in* OIL AND GOVERNANCE: STATE-OWNED ENTERPRISES AND THE WORLD ENERGY SUPPLY 557, 568-77 (Victor, Hults and Thurber eds., 2012).

65. *See* Paul Stevens, *Saudi Aramco: the jewel in the crown*, *in* OIL AND GOVERNANCE: STATE-OWNED ENTERPRISES AND THE WORLD ENERGY SUPPLY 173, 186-217 (Victor, Hults and Thurber eds. 2012).

66. *See* Yilei Wang, Qinghua Zhu & Yong Geng, *Trajectory and Driving Factors for GHG Emissions in the Chinese Cement Industry*, 53 J. OF CLEANER PRODUCTION 252, 257 (2013).

67. Mattijs Backx, Michael Carney & Eric Gedajlovic, *Public, Private and Mixed Ownership and the Performance of International Airlines*, 8 J. OF AIR TRANSP. MGMT. 213, 213 (2002).

68. *See* MORGAN HERVÉ-MIGNUCCI ET AL., SLOWING THE GROWTH OF COAL POWER IN

production.[69] Lastly, states also continue to participate in, and support, customer-oriented, carbon-intensive industries such as the automobile industry – the U.S. government was briefly the controlling owner of General Motors as the result of a $51 billion bailout, while the German state of Lower Saxony retains almost 12 % of Volkswagen's shares.[70]

State involvement in the fossil fuel sector stands out, however, because of its stronger leverage. The provision of plentiful affordable fossil fuels is the essential condition for the development of a carbon-intensive economy, enabling access to a convenient source of energy without much consideration for its global environmental impact.[71] In turn, states' equity stakes in fossil fuel companies represent a particularly significant step through which collective orientations create path-dependence. By providing plenty of affordable fossil fuel and promoting environmentally unsustainable modes of development, NFFCs thus create and participate in what has been termed a "carbon lock-in".[72] "Carbon lock-in" consists of "persistent market and policy failures that can inhibit the diffusion of carbon-saving technologies despite their apparent environmental and economic advantages."[73] For these reasons, it would hardly be an overstatement to claim that anthropogenic climate change would not have occurred, or at least not at the same speed, without states' investment in and support of NFFCs, and that this involvement is likely to have hindered climate change mitigation over the last quarter of a century. While taking regulatory steps, states have continued to support the growth of the carbon economy through their investments and shareholding.

CHINA: THE ROLE OF FINANCE IN STATE-OWNED ENTERPRISES 8 (2015) (estimating that Chinese public authorities directly control between 90 and 94% of the total installed coal power capacity in China with a financial ownership (taking into account of private minority shareholding in state-owned enterprises) of 77%).

69. IEA estimates that 48% of global power generation comes from state-owned companies. *See* IEA, *supra* note 9, at 31-33; *see also* HENRIK BERGSAGER AND ANNA KORPPOO, CHINA'S STATE-OWNED ENTERPRISES AS CLIMATE POLICY ACTORS: THE POWER AND STEEL SECTORS 49-50 (2013), *available at* http://norden.diva-portal.org/smash/get/diva2:702164/FULLTEXT01.pdf (last visited Nov. 11, 2016) (estimating that state-own enterprise represent about half of the production of steel and 60% of power generation in China).

70. For General Motors, *see* Steven M. Davidoff, *Uncomfortable Embrace: Federal Corporate Ownership in the Midst of the Financial Crisis*, 95 MINN. L. REV. 1733 (2011). For Volkswagen, see *Shareholder Structure*, VOLKSWAGEN, *available at* http://www.volkswagenag.com/en/InvestorRelations/shares/shareholder-structure.html (last visited Nov. 11, 2016). Note that Qatari SWF is also among Volkswagen's shareholders.

71. Johnsson & Kjärstad, *supra* note 17, at 18.

72. Gregory C. Unruh, *Understanding Carbon Lock-in*, 28 ENERGY POL'Y 817, 817 (2000).

73. *Id.*

Consequently, states' ownership in the fossil fuel sector suggests obligations for states to take steps to provide counterincentives and, arguably, to reduce their active involvement in *fostering* unsustainable economic models. While another line of argument could explore the obligations and responsibilities of all carbon majors as companies (whether or not state-owned),[74] this article focuses on states, thus opting for a traditional state-centric approach to international relations. Identifying responsibilities also suggests policy entry-points. As it is always more clearly acknowledged that something must urgently be done to rapidly and significantly limit and reduce global greenhouse gas emissions,[75] all options need to be considered simultaneously. State ownership in the fossil fuel sector is certainly one important complement to any (possibly market-based) consumption-based approach of greenhouse gas abatement.

II. ATTRIBUTING THE CONDUCT OF NFFCS TO STATES

State-owned enterprises are the poor siblings of arguments on climate change and responsibilities, which generally assume the existence of a clear distinction between the state and (private) economic actors.[76] State responsibility arises from an "internationally wrongful act," constituted by a "breach of an international obligation," which "is attributable to the [s]tate."[77] The relevant international obligations, whose breach could give rise to state responsibility, include mitigation obligations under the UNFCCC regime. More generally, excessive greenhouse gas emissions cause damage to the global atmospheric commons and are, therefore, incompatible with the principle of equal sovereignty or, more specifically, with the no-harm principle.[78]

Attribution, on the other hand, is generally established on the basis of case law, such as the historical *Trail Smelter* arbitral award, which suggests a due diligence obligation of states to regulate actors within their jurisdiction.[79] State responsibility would, accordingly, result from the

74. For an attempt before U.S. courts see Native Village of Kivalina v. ExxonMobil Corp., 663 F.Supp.2d 863 (N.D. Cal. 2009); Native Village of Kivalina v. ExxonMobil Corp., 696 F.3d 849 (9th Cir. 2012), *cert. denied*, 133 S. Ct. 2390 (2013) (mem.).

75. See for instance Paris Agreement, *supra* note 18, recital 5.

76. *See* e.g. Richard S.J. Tol & Roda Verheyen, *State Responsibility and Compensation for Climate Change Damages - a Legal and Economic Assessment*, 32 ENERGY POL'Y 1109, 1110 (2004).

77. Int'l Law Comm'n, Draft Articles on Responsibility of States for Internationally Wrongful Acts (DARSIWA), U.N. Doc. A/56/10 art. 1 and 2 (2001) [hereinafter DARSIWA].

78. *See* Humphreys et al., *supra* note 33.

79. *See* Trail Smelter (U.S. v. Can.), III R.I.A.A. 1905, 1965 (1941).

failure of a state to take appropriate steps to prevent harmful activities by, mostly, private companies. Yet, a stronger case can be made in relation to activities that are directly attributable to the state *as its own conduct*. Military greenhouse-gas emissions, for instance, could straightforwardly engage a state's responsibility, but these emissions are not as significant as those of state-owned enterprises – in particular those related to the production of fossil fuels by NFFCs.[80]

Given the large amounts of greenhouse gas emissions by state-owned enterprises, it is important to determine whether the conduct of these enterprises, in general, or NFFCs in particular, can be attributed to the state *as its own conduct*. When the existing literature considered this question, it quickly concluded that attribution was a simple, "undisputed" possibility.[81] Yet, closer inquiry shows that the question requires a more nuanced and cautious answer. Customary rules on state attribution do not recognize such significance to ownership alone: while attribution to the state certainly remains a possibility, not every conduct of every state-owned entity can systematically be attributed to the state for the purpose

80. In this connection, it is useful to note that the commercial conduct of NFFCs, such as extraction, refinement and marketing of oil and coal, has sometimes been interpreted to fall within governmental functions when appraising sovereign immunity. For example, in Matter of SEDCO before the federal district court in the US, Mexican Pemex was considered to be in "furtherance of Mexican National policy concerning its Petroleum resources" and, consequently, protected by sovereign immunity under the Foreign Sovereign Immunities Act. *In re* Sedco Inc., 543 F.Supp. 561 (S.D. Tex. 1982); *see also* Georges Delaume, *Economic Development and Sovereign Immunity*, 79 AM. J. INT'L L. 319, 326-328 (1985). In the Corporation Mexicana case, a subsidiary of Pemex, Pemex-Refining, was also granted immunity. *See* Corporacion Mexicana de Servicios Maritimos v. M/T Respect, 89 F.3D 650, 652, 657 (9th Cir. 1996). Similarly, in the case of Malaysian National Oil Corporation, one commentator suggested that "mining of petroleum and manufacture of petroleum . . . and the marketing of crude oil, natural gas and petroleum products by a corporation" was considered a "Governmental function." V.K. Moorthy, *The Malaysian National Oil Corporation: Is It a Government Instrumentality?* 30 Int'l & Comp. L. Q. 638, 654-55 (1981). Nowadays, the law of state immunities is more attuned towards restrictive immunity. *See, e.g.*, YANG XIAODONG, STATE IMMUNITY IN INTERNATIONAL LAW 230-297 (2012).

81. *See* Richard S.J. Tol & Roda Verheyen, *State Responsibility and Compensation for Climate Change Damages - a Legal and Economic Assessment*, 32 ENERGY POL'Y 1109, 1111 (2004) (suggesting in passing that it was "undisputed that emissions from state-owned electricity plants or other industrial plants (sic) are attributable to the state"). For a more recent example, *see* Peel, *supra* note 4, at 26:

> As a general matter, conduct 'attributable to the State under international law' generally excludes the actions of private actors, other than those acting 'under the direction and control of that state in carrying out the conduct'. In the case of climate change this poses a problem as the GHG that give rise to harm are generally emitted by private entities rather than states (although in some countries there remains significant state ownership of GHG-emitting facilities such as power stations).

Id. (citing *Report of the International Law Commission to the General Assembly*, 53 U.N. GAOR Supp. No. 10, at 103, U.N. Doc. A/56/10 (2001), *reprinted in* [2001] 2 Y.B. Int'l L. Comm'n 1, U.N. Doc. A/CN.4/SER.A/2001/Add.1 103).

of establishing state responsibility.[82]

The following provides a detailed doctrinal analysis of states' responsibility for the conduct of "their" fossil fuel producers based on customary international law, focusing particularly on the Draft Articles on the Responsibility of States for Internationally Wrongful Acts (DARSIWA),[83] as well as relevant judicial decisions.[84] The first subsection looks at general international law, as evidenced in particular by several cases involving investment treaty arbitration.[85] The second subsection looks more specifically at the treatment of this question by human rights jurisdictions. This separate treatment appeals to purely pragmatic considerations. International human rights law institutions, in particular, the European Court of Human Rights (ECtHR), have often developed reflections on state-owned entities in isolation from general international law.

A. Attribution under General International Law

In most domestic legislations, a corporation is recognized as a legal personality, independent from those of its shareholders.[86] In the *Barcelona Traction* case, the International Court of Justice (ICJ) asserted that "even if a company is no more than a means for its shareholders to achieve their economic purpose, so long as it is *in esse* it enjoys an independent existence."[87] This case concerned the exercise of diplomatic protection on behalf of the shareholders of a limited liability company for the injury suffered by the company itself.[88] The decision recognized the distinction between the company and its shareholders in domestic laws,

82. DARSIWA, supra note 77, art. 8, commentary, ¶ 6.

83. DARSIWA were adopted by the ILC in 2001 in an exercise of progressive codification of customary international law, *see* DARSIWA, *supra* note 77, at 31.

84. Beyond customary international law, a number of treaties contain separate attribution mechanisms designed for state-owned companies. *See, e.g.,* The North American Free Trade Agreement, Can.-Mex.-U.S., Dec. 17, 1992, 32 ILM 289 art. 1503 (1993); Free Trade Agreement, Sing.-U.S., art. 12.3, May 6, 2003.

85. These cases often boil down to state-owned entities either failing to fulfill their contractual obligations or taking expropriatory actions as a part of governmental policy. *See, e.g.,* Michael Feit, *Responsibility of the State Under International Law for the Breach of Contract Committed by a State-Owned Entity*, 28 BERK. J. INT'L L. 142 (2010).

86. REINIER KRAAKMAN ET AL., THE ANATOMY OF CORPORATE LAW: A COMPARATIVE AND FUNCTIONAL APPROACH 1-17 (2nd ed. 2009).

87. Barcelona Traction, Light and Power Company, Limited Second Phase (Belg. v. Spain) Judgment, 1970 I.C.J. 3, ¶ 45. "The concept and structure of the company are founded on and determined by a firm distinction between the separate entity of the company and that of the shareholder, each with a distinct set of rights." *Id.* ¶ 41. "It is a basic characteristic of the corporate structure that the company alone, through its directors or management acting it its name, can take action in respect of matters that are of a corporate character." *Id.* ¶ 42.

88. *Id.* ¶ 2.

thus suggesting that the conduct of state-owned companies such as NFFCs is not automatically attributable to their owners.[89] Likewise, according to the International Law Commission's (ILC's) commentary on state responsibility, "[t]he fact that the State initially establishes a corporate entity, whether by a special law or otherwise, is not a sufficient basis for the attribution to the State of the subsequent conduct of that entity."[90]

A more specific inquiry needs to distinguish between three alternative rules of attribution.[91] In the context of the ILC's commentary on state responsibility, the conduct of an NFFC may, first, be viewed as the conduct of state organ.[92] Second, an NFFC may be exercising elements of governmental authority.[93] Third, attribution of the conduct of an NFFC to the state can also be based on direction or control by that state.[94] Although the assessment of these alternative rules of attribution is occasionally conflated in the practice of international litigation,[95] they are discussed independently, in the following, for the sake of clarity.

1. NFFCs constituting an organ of the state

As states are legal persons, they only act through the intermediary of other persons or entities, including state organs. DARSIWA Article 4 states:

> The conduct of any State organ shall be considered an act of that State under international law, whether the organ exercises legislative, executive, judicial or any other functions, whatever position it holds in the organization of the State, and whatever its character as an organ of

89. Kaj Hobér, *State Responsibility and Attribution*, *in* THE OXFORD HANDBOOK OF INTERNATIONAL INVESTMENT LAW 549, 556-557 (Peter Muchlinski, Federico Ortino, & Christoph Schreue eds., 2008).

90. DARSIWA, *supra* note 77, art. 8, commentary, ¶ 6.

91. For a recent comprehensive treatise on the subject, *see* ALBERT BADIA, PIERCING THE VEIL OF STATE ENTERPRISES IN INTERNATIONAL ARBITRATION (2014); *see also* RUDOLF DOLZER & CHRISTOPH SCHREUER, PRINCIPLES OF INTERNATIONAL INVESTMENT LAW 195-206 (2008); *see* Hobér, *supra* note 89, at 554-71; STATE ENTITIES IN INTERNATIONAL ARBITRATION (Emmanuel Gaillard ed., 2007). Other rules of attribution, including the conduct of organs placed at the disposal of a state by another state, are less relevant to NFFCs. *See generally* DARSIWA, *supra* note 77, art. 6.

92. DARSIWA, *supra* note 77, art. 4.

93. *Id.* art. 5.

94. *Id.* art. 8.

95. This is mostly due litigation strategies. Claimants often assert state responsibility over a state-owned company's conduct on the basis of all three customary rules of attribution. Consequently, tribunals deciding the case have to be careful in assessing the merits of the claim against a particular rule. Tribunals are often criticized for neglecting such a careful assessment. *See, e.g.*, Luca Schicho, *Attribution and State Entities: Diverging Approaches in Investment Arbitration*, 12 J. WORLD INV. & TRADE 283, 298 (2011).

> the central government or of a territorial unit of the State. An organ includes any person or entity which has that status in accordance with the internal law of the State.[96]

Ownership, per se, does not appear in the definition of an organ, and mere state ownership will not automatically convert an entity into an organ of the state.[97] Further, internal laws rarely recognize state-owned corporations as state organs.[98] The second paragraph of Article 4, however, does not exclude the international recognition of state organs not recognized under domestic laws.[99] The ILC noted, in its commentary, the existence of domestic systems where "the status and functions of various entities are determined not only by law but also by practice, and reference exclusively to internal law would be misleading."[100] Indeed, internal law seldom contains a specific list of "state organs," and may have different definitions thereof. The ILC made it clear that there is no general obstacle for an entity with an independent legal personality to be recognized as a state organ.[101] As James Crawford argued in relation to Article 8, "where the company itself is an empty shell or is run simply as a vehicle by government officials," the corporate veil may no longer prevent attribution to the state.[102] Thus, a particular NFFC, which is part of the organization of the state or is otherwise allowed to act on its behalf, could be considered a state organ for the purpose of state responsibility.[103] The hypothesis is not completely unrealistic, given the intimate relationship between NFFCs and their state-owners. When a state holds a strong majority stake in an NFFC, which represents a two-digit part of the national economy, public and private functions become inextricably intertwined. This is even more pronounced if the state establishes a

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96. DARSIWA, supra note 77, art. 4.

97. JAMES CRAWFORD, STATE RESPONSIBILITY: THE GENERAL PART 118 (2013).

98. Naturally, there are a number of statutes pertaining to special powers, privileges and tasks of state-owned enterprises. *See, e.g.*, Law of Petróleos Mexicanos, *supra* note 60**;** *see also* Federal'nyi Zakon RF o "Rosatom State Atomic Energy Corporation" [Federal Law of the Russian Federation on Citizenship of the Russian], Sobranie Zakonodatel'stva Rossiiskoi Federatsii [SZ RF] [Russian Federation Collection of Legislation] 2007, N. 317 (enabling Rosatom, a state-owned company, to conclude international treaties); *see generally* William E. Butler, *Treaty Capacity and the Russian State Corporation*, 102 AM. J. INT'L L. 310 (2008).

99. DARSIWA, *supra* note 77, art. 4, ¶ 2.

100. DARSIWA, *supra* note 77, art. 4, cmt. ¶ 11.

101. *See* DARSIWA, *supra* note 77, art. 4, cmt. ¶ 6. "It is irrelevant for the purposes of attribution that the conduct of a State organ may be classified as 'commercial' or as 'acta iure gestionis'." *Id.*

102. CRAWFORD, *supra* note 97, at 163.

103. *See* DARSIWA, *supra* note 77, art. 4, ¶ 1. "The reference to a 'State organ' covers all the individual or collective entities which make up the organization of the State and act on its behalf." *Id.*

legally mandated monopoly or other particular privileges to the advantage of the company. Moreover, internal laws have sometimes recognized functions of state-owned enterprises going as far as concluding international treaties on behalf of the state.[104]

In fleshing out the conditions for considering attribution under Article 4, arbitral tribunals have generally refused to recognize NFFCs or other state-owned enterprises as state organs. In *White Industries Australia v. India*, for example, the tribunal concluded that Coal India was, "patently, not an organ of the state within the meaning of Article 4. . ."[105] In *Bayindir v. Pakistan*, the tribunal analyzed the conditions for attribution under Article 4 more carefully, noting that "[s]tate entities and agencies do not operate in an institutional or regulatory vacuum. They normally have links with other authorities as well as with the government."[106] Because the National Highway Authority of Pakistan (NHA) held a "separate legal status" from the state, including the capacity to sue and be sued, the possibility for "treating NHA as a State organ under Article 4" was discarded.[107] A tribunal reached a similar conclusion in *EDF (Services) v. Romania*, on the ground that the two concerned Romanian state-owned enterprises possessed "legal personality under Romanian law separate and distinct from that of the State, . . ."[108] and in *Noble Ventures v. Romania*.[109]

Some arbitral tribunals have opted for a different view, as illustrated by two awards that predated the adoption of DARSIWA. In *Emilio Agustín Maffezini v. Kingdom of Spain*, the tribunal argued that, despite its own legal personality, "financial companies such as SODIGA [Industrial Development Company of Galicia Limited] could not at the period relevant to the present dispute be held to fall entirely outside the overall scheme of public administration."[110] Likewise, the tribunal in *Salini Costruttori S.P.A. v. Kingdom of Morocco* considered that the National Society of Morocco highways (ADM), despite being a commercial company, passed both the "structural" and "functional" tests

104. *See* Butler, *supra* note 98, at 312.

105. White Indus. Austl. Ltd. v. India, UNCITRAL Arb. Trib., Final Award, ¶ 8.1.2 (Nov. 30, 2011).

106. Bayindir Insaat Turizm Ticaret ve Sanayi A.s v Islamic Republic of Pakistan, ICSID Case No. ARB/03/29, Award, ¶ 119 (Aug. 27, 2009).

107. *Id*.

108. EDF (Servs.) Ltd. v. Romania, ICSID Case No. ARB/05/13, Award, ¶ 190 (Oct. 8, 2009).

109. *See* Noble Ventures v. Romania, ICSID Case No. ARB/01/11, Award, ¶ 69 (Oct. 12, 2005).

110. Emilio Agustín Maffezini v. Spain, ICSID Case No. ARB/97/7, Award, ¶ 48 (Nov. 13, 2000).

for attribution of its conduct to the state.[111] The state owned 89% of the shares and there was extensive representation of high-ranking state officials within the General Meeting and the Board of Directors, meeting the elements of the structural test.[112] The functional test recognized that "ADM's main object [was] to accomplish tasks that are under State control."[113] Accordingly, the tribunal concluded that ADM was a "State company, acting in the name of the Kingdom of Morocco."[114] While the tribunal's reasoning is somewhat clouded and has received criticism, the award still portrays the intricacies of triggering state responsibility in the era of "extraordinary expansion of public authority activity" and "a varied spectrum of modes of organisation" that "resolutely imprint a public nature on the said company."[115]

Additional structured analyses were performed in *Paushok v. Mongolia* and *Deutsche Bank v. Sri Lanka*. In *Paushok v. Mongolia*, the tribunal analyzed the functions of the Central Bank of Mongolia, concluding that it assumed roles "that only a State can fulfill" such as the "exclusive right to issue currency, formulation and implementation of monetary policy, acting as the Government's financial intermediary; supervising activities of other banks; holding and managing the State's reserves of foreign currencies."[116] Accordingly, the entity fell under the definition of state organ despite Mongolian law being "not very helpful" in the assessment.[117] In *Deutsche Bank v. Sri Lanka*, the tribunal was also open to the possibility of attributing the breach of a hedging agreement by Ceylon Petroleum Corporation (CPC) to Sri Lanka under Article 4.[118] The tribunal stated that, "[w]hile it may be unusual for a state enterprise to be considered an organ of the State, this is only the case where the state enterprise is genuinely independent – the fact that it takes the form of a separate legal entity is not decisive."[119] The Tribunal cited a decision of the Supreme Court of Sri Lanka describing CPC as "'a Government creation clothed with juristic personality so as to give it an aura of

111. *See* Salini Costruttori S.P.A. v. Morocco, ICSID Case No. ARB/00/04, Decision on Jurisdiction, ¶ 32 (July 23, 2001).

112. Salini Costruttori S.P.A., ICSID Case No. ARB/00/4 ¶ 32. It has been considered that DARSIWA art. 4 relates to this structural test. *See, e.g.*, Feit, *supra* note 81, at 148-49.

113. Salini Costruttori S.P.A., ICSID Case No. ARB/00/4 ¶ 33.

114. *Id.* ¶ 35.

115. *Id.*

116. Paushok v. Mongolia, UNCITRAL, Award on Jurisdiction and Liability (April 28, 2011), ¶ 582.

117. *Id.* ¶ 581; *see also* CRAWFORD, *supra* note 97, at 127-28.

118. Deutsche Bank AG v Democratic Socialist Republic of Sri Lanka, ICSID Case No ARB/09/02, Award, Violation of Treaty (Oct. 31, 2012).

119. *Id.* ¶ 405(a).

independence'" despite "'deep and pervasive State control.'"[120] The Tribunal also noted that the company is

> A 100% State-owned entity and it benefits from the protection of immunity from suit. The Minister of Petroleum appoints its directors and may remove them. CPC has been established by a statute for the purpose of conducting Sri Lanka's oil policy in the national interest. There is considerable evidence as to the significant control exercised by the Government over CPC's personnel, finances and decision making. In particular, CPC is required to follow any written directions of the Minister of Petroleum, regardless of whether those directions are in the best interests of CPC.[121]

Even though they remain isolated, the awards in *Salini v. Morocco* and *Deutsche Bank v. Sri Lanka* reveal the possibility of holding state-owned enterprises as state organs.[122] The conditions placed on this form of attribution are restrictive, but as these cases suggest, some NFFCs may be considered state organs when they are deeply intertwined with the state that owns and controls them. Beyond ownership, criteria such as controls and functions also need to participate in the assessment of the nature of NFFCs on a case-by-case basis. It appears, however, that the dichotomy between state organs and purely private actors is not easily applied to the many varieties of NFFCs, many of which are situated within a frontier area between state conduct and purely private enterprise. The consequences of considering a given NFFC as a state organ are drastic, as all greenhouse gas emissions of this entity can then be directly attributed to the state.

2. NFFCs exercising elements of governmental authority

An alternative rule of attribution applies to the conduct of entities that, without being a state organ, nevertheless exercise, at certain times or in the pursuit of certain functions, some elements of governmental authority. DARSIWA Article 5 states:

120. *Id.* ¶ 405(a), *quoting* Dahanayake v. De Silva, [1978] 1 SLR 41, ¶53-54 (Sept. 10, 1979); *see also* CRAWFORD, *supra* note 97.

121. *Deutsche Bank AG*, ICSID Case No. ARB/09/02 ¶ 405(b) (footnotes omitted).

122. For a critical review of case law under Article 4, *see* Jaemin Lee, *State Responsibility and Government-Affiliated Entities in International Economic Law*, 49 J. WORLD TRADE 117, 149-151 (2015), particularly at 149-151. In Lee's view, "state organs under Article 4 are confined to formal arms or organs of a government and exclude government-owned or government-controlled entities." *Id.* Accordingly, the propensity of arbitrators to use techniques developed under Articles 5 and 8 "conflate and mingle" the structure of DARSIWA in the context of government-affiliated entities. *See* Jaemin Lee, *Putting a Square Peg into a Round Hole? Assessment of the "Umbrella Clause" from the Perspective of Public International Law*, 14 Chinese J. INT'L L. 341, 364-65 (2015).

> The conduct of a person or entity . . . which is empowered by the law of that State to exercise elements of the governmental authority shall be considered an act of the State under international law, provided the person or entity is acting in that capacity in the particular instance.[123]

The ILC commentary describes this article as an attempt to "take account of the increasingly common phenomenon of parastatal entities, which exercise elements of governmental authority in place of State organs, as well as situations where former State corporations have been privatized but retain certain public or regulatory functions."[124] The commentary notes, however, that the extent of state ownership is not decisive criterion for the purpose of attribution: "Instead, article 5 refers to the true common feature, namely that these entities are empowered, if only to a limited extent or in a specific context, to exercise specified elements of governmental authority."[125]

As noted above, NFFCs and other state-owned enterprises occupy a particular space between the state and the private sector. NFFCs, like other state-owned enterprises, are often tasked with various functions ranging from the management of sovereign petroleum wealth, to regulation and supervision.[126] Simultaneously, NFFCs operate largely as any other private enterprise. Per the logic of the Article 5, acts of NFFCs can only be attributed to the state if, and inasmuch as, this conduct is governmental in nature. This suggests a test of attribution which is more nuanced than the determination of whether an NFFC is a state organs, but also more fact-intensive and rife with complex distinctions.

Attribution based on Article 5 has been applied in two major arbitral cases. In *Noble Ventures v. Romania*, the conduct of the State Ownership Fund's conduct (which was then replaced by the Authority for Privatization and Management of the State Ownership) met the requirements. The tribunal concluded that this entity was acting "as the empowered public institution . . . to conclude agreements with investors but also, acting as a *governmental agency*, to manage the whole legal relationship with them, including all acts concerned with the implementation of a specific investment."[127] A similar reasoning applied to another NFFC, Petroecuador, in the case of *EnCana v. Ecuador*. The

123. DARSIWA, *supra* note 77, art. 5.

124. *Id.* art. 5, commentary.

125. *Id.*

126. Ji Li, *State-Owned Enterprises in the Current Regime of Investor-State Arbitration*, *in* THE ROLE OF THE STATE IN INVESTOR-STATE ARBITRATION 380, 398-402 (Shaheeza Lalani & Rodrigo Polanca Lazo eds., 2015).

127. Noble Ventures, Inc. v. Romania, ICSID Case No. ARB/01/11, Award (Oct. 12, 2005), ¶ 79.

tribunal considered it relevant that "Petroecuador was . . . subject to instructions from the President and others, and . . . pursuant to the law had and exercised authority 'to supervise the performance of . . . contracts and to propose or adopt for this purpose the judicial actions necessary for the defen[s]e of the national assets and public interest.'"[128] As pervasive governmental supervision "extended to supervision and control of Petroecuador's performance of the participation contracts," the tribunal concluded that Petroecuador's conduct of "entering into, performing and renegotiating the participation contracts (or declining to do so) [was] attributable to Ecuador."[129]

In two other subject matters, arbitral tribunals have refused to recognize elements of governmental authority as a ground for attribution on factual grounds. Attribution on this ground was rejected in the case of *EDF (Services) v. Romania*. In that case, the tribunal observed that two Romanian state-owned enterprises had "entered into and performed in pursuit of the corporate objects of a commercial company with the view to making profits, as any other commercial company operating in Romania," and concluded that neither of these enterprises "were agents of Romania or exercised governmental functions when they performed the specific acts and conduct" in question.[130] In *Jan de Nul v. Egypt*, likewise, the tribunal accepted that the Suez Canal Authority (SCA) "was and still is empowered to exercise elements of governmental authority."[131] Yet, when considering the SCA's conduct in the actual subject matter, the tribunal considered that this authority was not at play.[132] Therefore, the tribunal concluded that "the SCA acted like any contractor trying to achieve the best price for the services it was seeking,"[133] and that its conduct could not be attributed to the state.[134]

As the discussion above demonstrates, compared to DARSIWA Article 4, Article 5 reflects more subtly the ambivalent nature of state-owned enterprises that often oscillate between public and private functions. The case law, developed mostly through investment arbitration, demonstrates the possibility that state responsibility may apply to the conduct of NFFCs that are involved in the exercise of

128. EnCana Corp. v. Ecuador, LCIA Case UN3481, Award, ¶ 154 (Feb. 3, 2006).

129. *Id.*

130. EDF (Servs.) Ltd. v. Romania, ICSID Case No. ARB/05/13, Award (Oct. 8, 2009), ¶¶ 197-198.

131. Jan de Nul v. Arab Republic of Egypt, ICSID Case No ARB/04/13, Award (Nov. 6, 2008), ¶ 166.

132. *Id.* ¶ 169.

133. *Id.*

134. *Id.*

governmental authority, such as Petroecuador. This test is, however, relatively restrictive, and, as illustrated in *Jan de Nul v. Egypt*, this rule of attribution applies only inasmuch as the state-owned enterprise in question acts in its governmental capacity in a particular instance.[135] This raises thorny questions about what constitutes governmental authority, and whether, for instance, some aspects of the production of resources of national economic importance, such as fossil fuels in certain countries, are considered an exercise of governmental authority.[136] Absent a very broad conception of the exercise of governmental authority, DARSIWA Article 5 might only be a relatively narrow route for attributing the conduct of NFFCs to the state.

3. NFFCs subject to instructions, direction or control

A last relevant rule of attribution concerns conduct directed or controlled by a state. DARSIWA Article 8 provides, "[T]he conduct of a person or group of persons shall be considered an act of a State under international law if the person or group of persons is in fact acting on the instructions of, or under the direction or control of, that State in carrying out the conduct."[137] The commentary highlights the relevance of this article to state-owned enterprises, noting that attribution requires "evidence that the corporation was exercising public powers, or that the State was using its ownership interest in or control of a corporation specifically in order to achieve a particular result . . ."[138] Here again, ownership alone certainly does not suffice to establish attribution. The ICJ, in *Nicaragua v. United States*, suggested that attribution under this rule requires proof that the state "had effective control" over the agent in question.[139] The somewhat restrictive test of an "effective" control has been the object of long-lasting debates, and the ILC concluded that the

135. *Id.*

136. According to Crawford, one way to conceptualize governmental authority is to focus on "the content of the powers" and to align them with the "restrictive theory of state immunity" so as to achieve consistency between different branches of international law. CRAWFORD, *supra* note 97, at 129-132. *See also* Robert McCorquodale & Penelope Simons, *Responsibility Beyond Borders: State Responsibility for Extraterritorial Violations by Corporations of International Human Rights Law*, 70 MODERN L. REV. 598, 606-607 (2007). For contrary historical examples, *see, e.g.*, Moorthy, *supra* note 80, at 654-655; *see, e.g.*, Delaume, *supra* note 80, at 326-328.

137. DARSIWA, *supra* note 77, art. 8.

138. *Id.* art. 8 commentary ¶ 6 (*internal citations omitted*); *see also* CRAWFORD, *supra* note 97, at 164.

139. Military and Paramilitary Activities in and against Nicaragua (Nicar. v. U.S.), Judgment, 1986 I.C.J. 14, ¶ 115 (June 27). The case discussed the attribution to the United States of the conduct of military and paramilitary groups in Nicaragua, on the ground of subsidies and other support. *Id.*

nature of the requirement for attribution was "a matter for appreciation in each case . . ."[140] In 2007, the ICJ confirmed the general applicability of the "effective control" test in the *Bosnian Genocide* case.[141]

Applying the "effective control" test under Article 8 to state-owned enterprises, arbitral tribunals have considered this rule of attribution as "exceptional"[142] and "very demanding,"[143] in which most claims for attribution on this ground have failed. For instance, according to the tribunal in *White v. India*, the claimants had not been able to establish that "India had both general control over Coal India as well as specific control over the particular acts in question,"[144] noting that the government had played no role in negotiating or executing the contract in dispute or in monitoring the project.[145] Likewise, in *Jan de Nul v. Egypt*, there was "no evidence . . . of any instructions that the State would have given to the SCA in regard to the very specific acts and omissions of the SCA" that gave rise to the dispute.[146]

Attribution has, however, been recognized on this ground in special circumstances, involving, for instance, deep and pervasive connections between the state and the company, or tight constraints imposed on the company by the state.[147] Thus, the tribunal in *Bayindir v. Pakistan* attributed the conduct of the National Highway Authority to Pakistan after a detailed analysis of the connections existing between that entity and the Pakistani government with respect to the conduct in question.[148] Attribution was also accepted on the basis of control in *EDF (Services) v. Romania*, a case regarding the issuance of strict mandates to two state-owned companies to "exercise . . . their rights as shareholders" in a way that gave rise to a violation of the Bilateral Investment Treaty (BIT).[149]

140. DARSIWA, *supra* note 77, art. 8 commentary; *see also* Prosecutor v. Tadić, Case No. IT-94-1-A, Judgment, 38 ILM 1518, 1541 ¶ 117 (1999).

141. *See generally* Application of the Convention on the Prevention and Punishment of the Crime of Genocide (Bosn. & Herz. v. Serb. & Montenegro), 2007 I.C.J. 43, ¶¶ 413-415 (Feb. 26); *see also* CRAWFORD, *supra* note 97, at 147-56.

142. EDF (Servs.) Ltd. V. Romania, ICSID Case No. ARB/05/13, Award, ¶200 (Oct. 8, 2009).

143. Gustav FW Hamester GmbH & Co KG v. Ghana, ICSID Case No. ARB/07/24, Award, ¶ 179 (June 18, 2010).

144. White Indus. Austl. Ltd. V. India, UNCITRAL Arb. Trib., Award, ¶¶ 8.1.18-8.1.20. (Nov. 30, 2011).

145. *Id.* ¶ 8.1.19.

146. Jan de Nul N.V. v. Arab Republic of Egypt, ICSID Case No. ARB/04/13, Award, ¶ 173 (Nov. 6, 2008).

147. CRAWFORD, *supra* note 97, at 163.

148. *See* Bayindir Insaat Turizm Ticaret ve Sanayi A.s v. Islamic Republic of Pak., ICSID Case No. ARB/03/29, Award, ¶125 (Aug. 27, 2009).

149. EDF (Servs.) Ltd., ICSID Case No. ARB/05/13 ¶ 201.

The tribunal attributed the conduct on the ground that these companies were not "free to decide other than as provided by the mandates" from the government.[150] In a later, but more clouded decision, the tribunal, in *EnCana v. Ecuador*, considered that Petroecuador was under such governmental supervision and control, extending to supervisions of contracts, that its conduct was attributable under either Articles 5 or 8.[151]

Finally, in *Yukos v. Russia*, the tribunal highlighted the difficulty in attributing the conduct of Rosneft, an oil company in which Russia owned over 70% of the shares and appointed officers, and where many members of the Board of Directors concurrently occupied senior executive positions in the government.[152] The tribunal recognized that it would have been "difficult, if not impossible, to prove that Rosneft in so acting, did so at the instructions or direction, or under the control of the Russian State . . ."[153] Yet, the tribunal emphasized an explicit recognition by Russian President Putin that Rosneft had acted in the state's interest and the collusion between Rosneft and the Russian government. Accordingly, the tribunal deemed it reasonable to conclude that "the highest officers of Rosneft who at the same time served as officials of the Russian Federation in close association with President Putin acted in implementation of the policy of the Russian Federation."[154]

In sum, establishing attribution over the conduct of a state-owned enterprise based on direction or control is only possible in a few situations where the state-owned enterprise has little genuine independence, as was found in the cases of Petroecuador and Rosneft. Even in such cases, however, establishing the existence of instructions, direction or control is difficult due to limited access to evidence.[155] Whether under this rule of attribution, as state organs or as entities exercising elements of governmental authority, the cases discussed above suggest that the conduct of NFFCs is often prone to be attributed to the state in part or in whole. To a great extent, this is due to frequent collusion between these entities and national governments over key issues of national economic and energy policy.

150. *Id.* ¶ 205.

151. EnCana Corp. v. Ecuador, LCIA Case UN3481, ¶154 Award (Feb. 3, 2006). For critique, see Schicho, *supra* note 95, at 295-296.

152. Yukos Universal Ltd. v. Russian Federation, PCA Case No. AA 227, ¶ 1468 Award (July 18, 2014).

153. *Id.* ¶ 1469.

154. *Id.* ¶ 1480.

155. *See generally* Thomas W. Wälde, "*Equality of Arms" in Investment Arbitration: Procedural Challenges*, *in* ARBITRATION UNDER INTERNATIONAL INVESTMENT AGREEMENTS: A GUIDE TO THE KEY ISSUES 161, 176 (Katia Yannaca-Small ed., 2010).

B. Attribution under International Human Rights Law

Much of the contemporary discussion on attribution of the conduct of state-owned enterprises is dominated by the standards set in customary international law, and subsequently fine-tuned by the practice of arbitral tribunals. By contrast, standards developed within international human rights law have attracted less interest. This is unfortunate, as human rights law contains a rather sophisticated body of case law delineating the public and private spheres in the context of state ownership. This subsection discusses relevant cases in international human rights law, in particular in the practice of the European Court of Human Rights (ECtHR) under the European Convention on Human Rights (ECHR), regarding the attribution of the conduct of state-owned enterprises to the state.[156] This separate discussion is justified by purely pragmatic reasons, given that, unlike investment arbitration for instance, human rights adjudication has often developed in relative isolation from general international law. Although international human rights jurisdictions are generally hospitable toward holding states responsible for human rights violations committed by state-owned enterprises such as NFFCs, they clearly recognize significant differences of situations among state-owned enterprises.[157]

The obligations of states under international human rights law consist in negative obligations – to "respect" these rights by refraining from direct infringements – and positive obligations – to "protect" human rights against the action of private persons or entities.[158] When a state-owned enterprise hinders the enjoyment of human rights, cases unfold that need to determine whether such conduct is "directly imputable to the State party, or whether the State party's responsibility would be engaged by a failure to prevent" such conduct by third parties.[159] Absent specific treaty provisions, the treatment of such questions is addressed through the practice of human rights bodies.

156. *See generally* European Convention for the Protection of Human Rights and Fundamental Freedoms (ECHR) as amended by Protocols No. 11 and No. 14, Nov. 4, 1950, E.T.S. No. 5.

157. Mikko Rajavuori, *How Should States Own? Heinisch v. Germany and the Emergence of Human Rights-Sensitive State Ownership Function*, 26 EUR. J. INT'L L. 727, 732-735, 741-745 (2015).

158. International Covenant on Civil and Political Rights (ICCPR), art. 2, Dec. 16, 1966, 999 UNTS 171; *see also* Human Rights Committee, The Nature of the General Legal Obligation Imposed on States Parties to the Covenant, para. 8, U.N. Doc. CCPR/C/21/Rev.1/Add.13. (May 26, 2004).

159. Human Rights Committee, RC, Love v. Australia, Commc'n No. 983/2001. ¶ 8.4 U.N. Doc. CCPR/C/77/983/2001 (2003) (regarding an alleged discrimination by a national air carrier).

An early decision of the UN Human Rights Committee considered, as a starting position, that the conduct of the Finnish Broadcasting Company (FBC), "in which the State holds a dominant stake (90 per cent) and which is placed under specific government control,"[160] was directly imputable to the Finnish government.[161] Similarly, the African Commission on Human and Peoples' Rights found Nigeria responsible for an infringement to the right to food on the ground that "[t]he government ha[d] destroyed food sources through its security forces and state oil company. . ."[162] To date, however, the most comprehensive case law emerges from the ECtHR, which developed a relatively coherent set of criteria to determine whether the conduct of state-owned entities could be directly attributed to the state as a breach of a negative obligation, taking into particular consideration:

[T]he company's legal status (under public or private law); the nature of its activity (a public function or an ordinary commercial business); the context of its operation (such as a monopoly or heavily regulated business); its institutional independence (the extent of State ownership); and its operational independence (the extent of State supervision and control).[163]

Thus, like in general international law, state ownership is only one of the relevant elements in a relatively restrictive test. Several cases have passed this test successfully. In *Mykhaylenky and others v. Ukraine*, for example, applicants were allowed to recover salary arrears from state-owned company Atomspetsbud, which carried out construction work within the evacuated zone at Chernobyl.[164] The ECtHR recognized the public nature of the company despite its domestic legal status, on the grounds of the "highly regulated sphere of nuclear energy;" the conduct of operations in a zone of compulsory evacuation "under strict governmental control on account of environmental and public-health consideration," and the control of the state on "the applicant's terms of employment by the company, including their salaries."[165] In its most

160. Human Rights Committee, Hertzberg v. Finland, Commc'n No. 61/1979, ¶ 9.1, U.N. Doc. CCPR/C/OP/1 at 124 (1985).

161. *Id.*

162. Soc. and Econ. Rights Action Ctr. (SERAC) v. Nigeria, AHRLR 60, ¶66 (Oct. 27, 2001). The decision referred to the action of the Nigerian National Petroleum Company, in particular as part of a consortium with Shell Petroleum Development Corporation. Interestingly, this decision contains no specific discussion on imputation. *Id.*

163. The most recent authoritative formulation of the test can be found in ECtHR, Ališić and others v. Bosnia and Herzegovina, Croatia, Serbia, Slovenia and the Former Yugoslav Republic of Macedonia, App. No. 60642/08, Eur. Ct. H.R. ¶ 114 (2014).

164. Mykhaylenky v. Ukraine (No. 35091/02), 2004-XII Eur. Ct. H.R. ¶ 5.

165. *Id.* ¶ 45.

recent cases, the ECtHR started to explicitly align such considerations with general international law. In *Liseytseva and Maslov v. Russia,* for example, the ECtHR discussed "whether and how the extensive powers of control provided for in the domestic law were actually exercised by the authorities in a given case,"[166] relating this discussion to the rule on instructions, direction and control recognized in DARSIWA Article 8.[167]

Similar considerations were sometimes discussed at the stage of admissibility, in deciding whether a state-owned company was a distinct entity capable of bringing complaints against the state. In *State Holding Company Luganskvugillya v. Ukraine*, for instance, the ECtHR declared inadmissible the application of a Ukrainian state holding company taking part active in the coal industry, on the ground that this organization and the state were not independent parties.[168] Similarly, in *Transpetrol v. Slovakia*, the application of a state-owned oil trade company was ruled inadmissible because of the perceived unity of interest between the state and the company.[169] While the ECtHR has admitted applications from state-owned entities in other cases,[170] *State Holding Company Luganskvugillya* and *Transpetrol* demonstrate that state-owned companies operating in key industrial sectors, such as energy development, may be considered part of the state despite their formal classification as independent legal persons.[171]

The ECtHR has also recognized the relevance of state ownership to the characterization of states' *positive* obligations. In *Fadeyeva v. Russia*, holding Russia liable for its failure to take measures to reduce pollution hazards related to a steel plant, the court noted as a side-consideration that this plant had once been owned, controlled and operated by the state, even though it had been privatized before the facts giving rise to this claim.[172] Considering that "[t]he plant [had] malfunctioned from the start, releasing gas fumes and odours, contaminating the area, and causing health problems and nuisance to many people"[173] in the area, the court

166. Liseytseva and Maslov v. Russia (No. 39483/05 & No. 40527/10) 178 Eur. Ct. H.R. ¶206 (2014).

167. *Id.* ¶ 205; *see also* Jaloud v. The Netherlands (No. 47708/08), Eur. Ct. H.R. ¶¶ 137-154 & Concurring Opinion of Jedge Spielmann (2014).

168. State Holding Co. Luganskvugillya v. Ukraine (No. 23938/05), Eur. Ct. H.R. (2009).

169. Transpetrol v. Slovakia (No. 28502/08), Eur. Ct. H.R. ¶ 76 (2011).

170. *See, e.g.*, Islamic Republic of Iran Shipping Lines v. Turkey (No. 40998/98), Eur. Ct. H.R. (2007); Ukraine-Tyumen v. Ukraine (No. 22603/02), Eur. Ct. H.R. (2007).

171. *See* State Holding Co. Luganskvugillya v. Ukraine (No. 23938/05) and Transpetrol v. Slovakia (No. 28502/08) ¶ 76.

172. Fadeyeva v. Russia, 2005-IV Eur. Ct. H.R. 255, ¶ 90.

173. *Id*.

thus insisted that public authorities "were certainly in a position to evaluate the pollution hazards and to take adequate measures to prevent or reduce them."[174] State ownership was also an aggravating factor in *Dubetska v. Ukraine*, a case concerning air, water and soil pollution from two state-owned industrial facilities.[175] While recognizing the state-owned enterprises as independent from the state and situating the case within the state's positive obligations, the ECtHR insisted that, given the state's involvement, it "should have been, and in fact was, well aware of the environmental effects of the operation of these facilities. . ."[176] Accordingly, the strong ownership position of the state was considered a part of "the combination of all . . . factors" that gave rise to state responsibility under the Art. 8 ECHR.[177]

In its most recent judgments, the ECtHR shows a stronger tendency to blur the line between positive and negative obligations in situations at the frontier between public and private sectors. In *DRAFT – OVA a.s. v. Slovakia*, which concerned an extraordinary appeal lodged by the Office of the Prosecutor General for the benefit of a state-owned gas company, the ECtHR held that the state party was in violation of Art. 6 ECHR due to a breach of the principle of legality and equality of arms.[178] The applicant submitted that the extraordinary appeal had not "served any greater good than the Government's political and economic interests."[179] The ECtHR accepted the applicant's position, noting that it was problematic for a state to justify extraordinary appeal when it "had an interest in the outcome of the proceedings through its majority shareholding in the defendant. . ."[180] Similarly, in *Heinisch v. Germany*, relating to a case of whistleblowing, the ECtHR signaled that the "public shareholder," having a majority stake in a company running a geriatric nursing home, ought to take active part "in investigating and clarifying alleged deficiencies in this respect within the scope of an open public debate."[181] In *DRAFT - OVA a.s.* and *Heinisch* alike, the ECtHR adopted a pragmatic perspective where the state's "proprietary interest"[182] was taken into account in determining the nature and extent of its obligations. In other words, these cases suggest that states have specific obligations

174. *Id.* ¶ 92.
175. Dubetska v. Ukraine (No. 30499/03), Eur. Ct. H.R. ¶ 118 (2011).
176. *Id.* ¶ 120.
177. *Id.* ¶ 123.
178. Draft - Ova a.s. v. Slovakia (No. 72493/10), Eur. Ct. H.R. ¶ 86 (2015).
179. *Id.* ¶ 71-72.
180. *Id.* ¶ 85.
181. Heinisch v. Germany, 2011-V Eur. Ct. H.R. 229, ¶ 89.
182. Draft - Ova a.s. v. Slovakia, No. 72493/10, Eur. Ct. H.R. ¶ 76 (2015).

in their shareholder capacity even in cases where the company is operationally independent and does not pursue public functions.[183]

This appreciation of SOEs' ambivalent nature has been shared by human rights institutions within the UN system. Treaty bodies have, for instance, pressed states to guarantee gender equality in executive positions within state-owned companies[184] and to mainstream human rights concerns in the conduct of state-owned export credit agencies.[185] State-owned companies, sovereign wealth funds, and other means of utilizing public wealth to coincide with states' human rights obligations, also occupy a prominent place in the *Protect, Respect and Remedy Framework for Business and Human Rights* (UN Framework)[186] and in the *Guiding Principles on Business and Human Rights* (GPs).[187] Since their endorsement by the HRC, these instruments have emerged as the most authoritative platforms aligning corporate conduct and states' human rights obligations, being widely cited by other international institutions[188] and governments.[189]

183. *See* Rajavuori, *supra* note 157, at 744-746.

184. *See* Comm. on the Elimination of Discrim. Against Women, Concluding Observations: Finland, U.N. Doc. A/63/38, ¶ 21 (2008) [hereinafter CEDAW](“welcoming the increase in the number of women board directors in State-owned or partly State-owned companies as a result of the measures contained in the National Action Plan to Implement Equality”); *see also* Conn. On the Elimination of Discrim. Against Women, Concluding Observation: Poland, U.N. DocC/POL/CO/7-8 ¶ 35 (2014) (urging “the State party to take measures to achieve women's equal and full participation in decision-making in the economic sphere, in particular in the management and supervisory boards of listed companies and State-owned public companies”).

185. Comm. on the Rights of the Child, Concluding Observations: Australia U.N. Doc. CRC/C/AUS/CO/4 ¶ 28 (2012) (recommending “the State party . . . [to] establish the mechanisms for the Export Credit Agency of Australia to deal with the risk of abuses to human rights before it provides insurance or guarantees to facilitate investments abroad”).

186. *See generally* Special Representative of the Secretary-General, *Protect, Respect and Remedy: A Framework for Business and Human Rights*, ¶ 32 U.N. Doc. A/HRC/8/5 (April 7, 2008) (noting that “inducing a rights-respecting corporate culture should be easier to achieve in State-owned enterprises [and that] the State itself may be held responsible under international law for the internationally wrongful acts of its SOEs”).

187. *See generally* HRC, *supra* note 1 (urging “States [to] take additional steps to protect against human rights abuses by business enterprises that are owned or controlled by the State;” *see also* Mikko Rajavuori, *State Ownership and the United Nations Business and Human Rights Agenda: Three Instrument, Three Narratives*, 23 IND. J. GLOB. LEG. STUDIES 665 (2016).

188. *See* OECD, GUIDELINES FOR MULTINATIONAL ENTERPRISES 3 (2011); *see also* IFC, PERFORMANCE STANDARDS ON ENVIRONMENTAL AND SOCIAL SUSTAINABILITY 6 (2012).

189. Many national action plans implementing the GPs discuss state-owned companies. *See, e.g.*, UK, *Good Business: Implementing the UN Guiding Principles on Business and Human Rights* (2013) *available at* www.gov.uk/government/uploads/system/uploads/attachment_data/file/236901/BHR_Action_Plan_-_final_online_version_1_.pdf (last visited Nov. 14, 2016); *Action Plan for Business*

Building on the UN Framework and the GPs, the Committee on the Rights of the Child (CRC) has taken noteworthy positions. For example, the CRC recommended to Sweden "that State corporations, including the State Pension Funds, who invest abroad or operate through subsidiaries or associates in foreign countries comply with due diligence requirements to prevent and protect children in those countries. . ."[190] More significantly, the General Comment No. 16 on state obligations regarding the impact of the business sector on children's rights developed a more systematic analysis of such questions.[191] From the obligation of states to respect human rights, the CRC deduced that "States should not invest public finances and other resources in business activities that violate children's rights."[192] Further, the CRC advised states to "lead by example, requiring all State-owned enterprises to undertake child-rights due diligence and to publicly communicate their reports on their impact on children's rights. . ."[193] These propositions, even when expressed as "should" rather than "must" obligations, show how state ownership can be framed as a tool for the pursuance of states' obligations.[194]

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and Human Rights, GOVERNMENT OFFICES OF SWEDEN, *available at* www.government.se/contentassets/822dc47952124734b60daf1865e39343/action-plan-for-business-and-human-rights.pdf (last visited Nov. 14, 2016); *see also* MINISTRY OF EMPLOYMENT, NATIONAL ACTION PLAN FOR THE IMPLEMENTATION OF THE UN GUIDING PRINCIPLES ON BUSINESS AND HUMAN RIGHTS (2014).

190. Convention on the Rights of the Child, Concluding Observations: Sweden, U.N. Doc. CRC/C/OPSC/SWE/CO/1, ¶ 20. The CRC "note[d] with interest that the Ethical Council of the four State pension funds examines environmental and ethical considerations by foreign companies where the Funds invest." *Id.* ¶ 20.

191. Convention on the Rights of the Child, General Comment 16, State Obligations Regarding the Impact of the Business Sector on Children's Rights (April 17, 2013), U.N. Doc. CRC/C/GC/16. ¶ 27.

192. *Id*.; *see also* Paula Gerber, Joanna Kyriakakis & Katie O'Byrne, *General Comment 16 on State Obligations Regarding the Impact of the Business Sector on Children's Rights: What is its Standing, Meaning and Effect?*, 14 MELBOURNE J. INT'L L. 93 (2013).

193. CRC, *supra* note 191, ¶ 64.

194. In previous General Comments, the Committee on Economic, Social and Cultural Rights (CESCR) has drawn attention to state's role in the economy, noting that "States should also refrain from unlawfully polluting air, water and soil, e.g. through industrial waste from State-owned facilities." Comm. on Econ., Social and Cultural Rights (CESCR), *General Comment 14*, *The Right to Highest Attainable Health* (August 11, 2000), U.N. Doc. E/C.12/2000/4, ¶ 34; *see also* CESCR, *General Comment 15*, *The Right to Water* (January 20, 2003), U.N. Doc. E/C.12/2002/11, ¶ 1; HRC, Addendum to the Report of the Special Rapporteur on the Human Right to Safe Drinking Water and Sanitation, Catarina de Albuquerque (July 2, 2012), U.N. Doc. A/HRC/21/42/Add.2 ¶56:

"The Special Rapporteur concludes that Uruguay has made important efforts in ensuring access to safe drinking water and sanitation for its population. The rates of access in the country prove that State-owned companies can successfully promote the realization of the rights to water and sanitation."

Id.

In sum, as is the case of the international investment treaty system, the international human rights regime has struggled to come to terms with the ambivalence of state ownership. Like in general international law, a general trend inclines towards the attribution of the conduct of state-owned enterprises to the state. States are expected to "lead by example"[195] and, as "public shareholders,"[196] to bear at least some of the responsibilities for the conduct of state-owned enterprises. Going further than arbitral tribunals and alluding at the signification of ownership per se as a form of financial leverage for specific sectors or methods of operations, human rights bodies look beyond strict rules of attribution and construe state ownership as a flexible governance tool that should be used in conformity with and, arguably, in pursuance of states' obligations under international law.[197]

This could apply, beyond human rights obligations, to states' obligations in relation to climate change mitigation.[198] As investors and shareholders, states could make a meaningful difference through the definition of overall investment strategies that have local or global environmental implications, in the selection of executive officers sensitive to climate change issues, or even through imposing specific greenhouse gas reduction targets to domestic and overseas activities of state-owned companies, thus leading the way toward a low-carbon economy.[199] While this does not necessarily suggest a complete public divestment from fossil fuel production, this certainly requires that NFFCs do a little more than just maximizing their immediate profit. The next

195. CRC, *supra* note 191, ¶ 64.

196. Rajavuori, *supra* note 187, ¶ 89.

197. *See* Larry Catá Backer, *Sovereign Investing and Markets-Based Transnational Rule of Law Building: The Norwegian Sovereign Wealth Fund in Global Markets*, 29 AM. U. INT'L L. REV. 1 (2013).

198. Some attempts have been made to justify climate change mitigation in relation to the protection of human rights, on the ground that "the adverse effects of climate change have a range of direct and indirect implications for the effective enjoyment of human rights." *See* The Cancun Agreements: Outcome of the work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention, Decision 1/CP.16 (2010). HRC has adopted a series of resolutions on climate change and human rights, the latest of which being HRC. Human Rights and Climate Change, U.N. Doc. A/HRC/29/L.21 (June 30, 2015). Yet, great difficulties have been met at the stage of asserting any specific state obligations, on the basis of international human rights law, in relation to climate change. *Id.*

199. This form of influence comes particularly close to investment activism and, generally, to the idea that shareholders ought to impose greater scrutiny and influence on their investee companies. Such practices are already pursued by state shareholders. *See, e.g.*, *CLIMATE CHANGE STRATEGY. EXPECTATIONS TO COMPANIES*, NORGES BANK INVESTMENT MANAGEMENT (2015), *available at* http://www.nbim.no/contentassets/27ce1a7cbf0b4bba9d4d94bd23165e46/climate-change-strategy-document.pdf (last visited Nov. 8, 2016).

section discusses norms of international law on climate change mitigation and explores how state responsibility could arise on the grounds of direct or indirect attribution.

III. STATES' RESPONSIBILITIES ARISING FROM NFFCS

The UNFCCC regime – that is to say, the UNFCCC itself, the Kyoto Protocol and its "Doha" amendment (pending entry into force) and the Paris Agreement, as well as multiple decisions adopted by the conference of the parties (COP) in its yearly meetings – aims to "achieve . . . stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system."[200] Although the UNFCCC regime does not contain any provision defining states' obligations either as investors or shareholders,[201] some provisions, discussed below, are indirectly relevant to state ownership in the fossil fuel sector. Since the UNFCCC regime does not preclude the application of general international law,[202] other relevant obligations arise from the obligation of states to refrain from activities that cause significant cross-boundary environmental damage (no harm principle) and from the law of state responsibility.[203]

The UNFCCC regime recognizes an obligation for states to take appropriate measures to mitigate climate change while also pursuing a sustainable development.[204] While the UNFCCC itself only contains vague provisions,[205] individual emissions limitation and reduction commitments applicable to developed states are included in the Kyoto Protocol (first implementation period, 2008-2012) and its "Doha" amendment (second implementation period, 2013-2020).[206] For the same periods, developing states have also committed, in the UNFCCC and again in the Kyoto Protocol, to "implement . . . programmes containing

200. U.N. Framework Convention on Climate Change (UNFCCC) art. 2 U.N. Doc. FCCC/INFORMAL/84 (1992). Since the adoption of the Bali Action Plan of 2007, significant emphasis has also been put on adaptation to climate change. *Id.*

201. *But see* Kyoto Protocol, *supra* note 21.

202. *See* Mayer, *supra* note 25, at 4.

203. *See, e.g.*, ILA, *supra* note 29.

204. *See*, UNFCCC, *supra* note 5, art. 3(4) (providing that "the Parties have a right to, and should, promote sustainable development"); *see also* U.N. Conference on Environment and Development, Rio Declaration of Environment and Development, U.N. Doc. A/CONF.151/26/Rev.1 (Vol. I), Principle 2 (June 14, 1992).

205. *See* UNFCCC, *supra* note 5, art. 4(1) (b), art. (2) (a).

206. *See* Kyoto Protocol, *supra* note 21, art. 3, Annex B,; *see* Amendment to the Kyoto Protocol Pursuant to Article 3, Paragraph 9 (the Doha Agreement), Dec.1/CMP.8, U.N. Doc. FCCC/KP/CMP/2012/13/Add.1 (Dec. 21, 2012) [hereinafter the Doha Amendment].

measures to mitigate climate change. . ."[207] From 2020 onwards, the Paris Agreement will organize a collective oversight of nationally determined contributions to the global response to climate change to which all parties – developed and developing states – are invited to contribute in light of their national circumstances.[208]

The obligations arising from the UNFCCC regime or the no-harm principle remain result-oriented, leaving the selection of appropriate means to parties.[209] Available policy instruments range from broad market-based "cap-and-trade" mechanisms to very specific measures, or policies, regulating, or des-incentivizing, emissions of particular greenhouse gases and/or specific economic sectors.[210] The UNFCCC regime draws no distinction between public sector and private sector emissions, but the emphasis in most party submissions and international negotiations has disproportionately been put on the private sector. The Clean Development Mechanism (CDM), established by the Kyoto Protocol to allow developed parties to support mitigation in developing states, was largely developed "with the private sector in mind,"[211] although a sample analysis of its implementation suggests massive involvement of the public sector.[212] Likewise, the public sector and NFFCs were not generally mentioned within the Intended Nationally Determined Contributions (INDCs) through which the parties to the UNFCCC announced their mitigation objectives and considered methods of implementation in the run-up to Paris COP 21.[213] Although the Paris

207. *See* UNFCCC, *supra* note 5, art. 4(1) (b); *see also* Kyoto Protocol, *supra* note 21, art. 10(b).

208. Paris Agreement, *supra* note 18, art. 3.

209. *See* UNFCCC, *supra* note 5; *see also* Kyoto Protocol, *supra* note 21, at Annex A (Thus, the UNFCCC applies indistinctively to "carbon dioxide and other greenhouse gases not controlled by the Montreal Protocol," whereas the Kyoto Protocol contains a list of six gases in its Annex A, to which the Doha Amendment adds a seventh gas. Annex A of the Kyoto Protocol also contains a list of relevant sectors or "source categories" of emissions. *Id.*

210. Ottmar Edenhofer et al., *Technical Summary*, CLIMATE CHANGE 2014: MITIGATION OF CLIMATE CHANGE, WORKING GROUP III CONTRIBUTION TO THE FIFTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 33, 97 (2014).

211. UNCTAD, *supra* note 20, at 14; *see* Kyoto Protocol, *supra* note 21, art. 12(9) (making it clear that this mechanism "may involve private and/or public entities").

212. MARTIN STADELMANN, THE EFFECTIVENESS OF INTERNATIONAL CLIMATE FINANCE IN ENABLING LOW-CARBON DEVELOPMENT: COMPARING PUBLIC FINANCE AND CARBON MARKETS, 137 (2013) (finding "that in around 40% of the projects [in a sample], the public sector ha[d] at least partial ownership").

213. *See* UNFCCC, COMPILATION OF INTENDED NATIONALLY DETERMINED CONTRIBUTIONS (2015), *available at* http://www.unfccc.int/files/adaptation/application/pdf/all__parties_indc.pdf (last visited Nov. 9, 2016). There were two exceptions: Barbados's INDC mentioned a "Public Sector Energy Efficiency and Conservation Programme" among a series of tools for reducing

Agreement "recognize[d] the importance of integrated, holistic and balanced non-market approaches" that would, among others, "enhance public and private sector participation in the implementation of nationally determined contributions,"[214] the overall trend remains characterized by an overall emphasis on market-based mechanisms as a way of reducing private actors' greenhouse gas emissions.[215]

Against this backdrop, we argue in the following that states' responsibilities might be arising from their investment and shareholding in the fossil fuel sector under at least five circumstances: (1) excessive greenhouse gas emissions directly attributable to the state, (2) aid and assistance to other states in causing excessive greenhouse gas emissions, (3) specifically-prohibited economic incentives, (4) specifically-prohibited communication strategies, (5) and the development of vested interests conflicting with the state's international obligations.

A. Excessive greenhouse gas emissions directly attributable to the state

State responsibility can arise when the conduct of one or several NFFCs, being attributable to a particular state, constitutes a breach of an international obligation of that state.[216] The previous section has shown that the conduct of a NFFC can be attributed to a state under if the NFFC is considered a state organ, if it exercises elements of governmental authority or is subjected to instructions, direction or control from that state.[217] In cases where the conduct of one or several NFFCs can be attributed in whole or in part to a state (or group of states), state responsibility could arise if the conduct constitutes (or contributes to) a breach of the mitigation obligations arising from the UNFCCC regime or the no-harm principle.

In many cases, it is unnecessary to establish a ground for direct attribution because state responsibility could just as well be established

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electricity consumption, and Gambia's INDC suggested that "public sector infrastructure investment that are critical to the transition to the green economy" should be given priority financing. Yet, there was no mention of the massive ownership and shareholding of states in the fossil fuel sector. For a rare exception, see the remarks by Mr. Bakohdir Burkhanov, Deputy Country Director, UNDP Vietnam, at the consultation workshop on the Intended Nationally Determined Contributions, on May 18, 2015, noting that "reforms . . . of relevant state-owned enterprises are needed" towards energy efficiency and clean and renewable energies. *Id.*

214. Paris Agreement, *supra* note 18, art. 6(8).

215. Richard Newell, William Pizer & Dani Raimi, *Carbon Market Lessons and Global Policy Outlook*, 343 SCIENCE. 1316, 1317 (2014).

216. DARSIWA, *supra* note 77, art. 2.

217. *See* discussion in section II, *supra*.

based on states' due diligence obligation.[218] By contrast, to human rights law, the UNFCCC regime makes no distinction between the negative obligation of a state to control its own emissions and its positive obligations to regulate emissions within its jurisdiction.[219] Mitigation commitments only regard the totals emissions originating from a particular country.[220] In practice, efforts are likely to take place within both the public and private sectors. Likewise, it is long accepted that the no-harm principle implies both a negative obligation for the state to refrain from activities causing significant cross-boundary environmental damages, and also a positive obligation to prevent such activities from being carried out within its jurisdiction.[221] Therefore, state responsibility could generally be established, on the basis of either mitigation obligations under the UNFCCC or the no-harm principle, with regard to the conduct of any actors within the state's jurisdiction, whether or not the conduct of these actors can be directly attributed to the state.

The geographical scope of positive obligations, however, has often been construed as limited to the territory of the state. As a matter of fact, the UNFCCC, the Kyoto Protocol and the Paris Agreement contain no provisions specifically defining their geographical scope,[222] and the possibility of extraterritorial jurisdiction absent any specific treaty provisions remains largely an undetermined question in the law of treaties.[223] There is however a general tacit understanding that mitigation obligations under the UNFCCC regime are confined to each state party's own territory.[224] Likewise, the geographical scope of the no-harm principle has been defined as applicable to the state's "territory" or, more

218. *See* Christoph Schwarte and Will Frank, *The International Law Association's Legal Principles on Climate Change and Climate Liability Under Public International Law*, 4 CLIMATE LAW 201 (2014).

219. *See, e.g.* UNFCCC, *supra* note 5, art. 4(1) (b).

220. Kyoto Protocol, *supra* note 21, art. 3(3); *see also* UNFCCC, *supra* note 5, art. 4(1) (b), (2) (a).

221. *See* Trail Smelter Case (U.S. v. Can.), 3 R.I.A.A. 1905, 1965 (Conv. Of Ottawa, 1941) (stating, "no State has the right *to use or permit the use* of its territory" to cause extraterritorial environmental damage [emphasis added]).

222. *See* Kyoto Protocol, *supra* note 21, art. 3(1) (defining only an obligation for developed states to limit or reduce "their aggregate" greenhouse gas emissions. "Their" seems to imply a jurisdictional limitation, although not necessarily an exclusion of the exercise of personal jurisdiction). Other provisions on mitigation (e.g. UNFCCC art. 1(b) and 2(a), Kyoto Protocol art. 10(b)) only call for mitigation, without any wording that could be read as an allusion to any geographical or jurisdictional limitation.

223. Vienna Convention on the Law of Treaties, May 23, 1969, art. 29, 1155 UNTS 331 [hereinafter VCLT].

224. Thus, under the EU Emissions Trading Scheme, each EU member state applies a cap-and-trade mechanism to activities taking place within its own territory.

often, by reference to activities within its "jurisdiction and control."[225] The controversies raised by the attempt of the EU Commission to extend an emission trading scheme over all international flights to or from EU member states shows that an extraterritorial application of mitigation obligations is not consensual, although it might be justified under international law.[226] Extraterritorial but strictly personal jurisdiction would certainly be less controversial within the international law community, for instance if a state attempted to regulate greenhouse gas emissions in the overseas operations of national corporations, although such measures are likely to raise strong political resistance as they would hinder the economic competitiveness of national companies.

Very often, NFFCs operate beyond the territory of the state to which they belong, for instance through exploration, production and/or distribution.[227] With regard to such circumstances, the case for negative obligations is much stronger, legally and politically, than anything suggesting an active extraterritorial involvement; whereas positive extraterritorial obligations are not well recognized even on the basis of personal jurisdiction, obligations arising from the UNFCCC regime and from the no-harm principle require *at the very least* that a state desist from causing excessive greenhouse gas emissions abroad by its own action. Accordingly, the overseas conduct of one or several NFFCs directly attributable to the state could entail that state's responsibility on the basis of the no-harm principle as well as the UNFCCC regime.

The reference to "jurisdiction or control"[228] to define the scope of

225. *See, e.g.*, U.N. Conference on the Human Environment, *Declaration of the United Nations Conference on the Human Environment*, Principle 21, U.N. Doc. A/CONF.48/14/Rev.1 (June 16, 1972); U.N. Conference on Environment and Development, *Rio Declaration on Environment and Development*, Principle 2, U.N. Doc. A/Conf.151/26/Rev. 1 (Aug. 12, 1992); The Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 I.C.J. Rep. 226 ¶ 29 (July 8); Trail Smelter (U.S. v. Can.), III R.I.A.A. 1905, 1965 (1941).

226. See Christina Voigt, Up in the Air: Aviation, the EU Emissions Trading Scheme and the Question of Jurisdiction, 14 CAMBRIDGE Y.B. OF EUR. LEGAL STUD. 475, 483 (2011); Benoit Mayer, Case note: ECJ Case C-366/10, Air Transport Association of America and Others v. Secretary of State for Energy and Climate Change, Judgment of the Court (Grand Chamber) of 21 December 2011, 49 COMMON MKT. L. REV. 1113, 1118 (2011).

227. Cuervo-Cazurra et al., supra note 59 (analyzing the phenomenon of state-owned enterprises acting overseas, just as multinational companies would do). A similar situation, for our purpose, regards states acquiring equity stakes in private multinational companies (or in other states' NFFCs). See Table 2 for select state investments in private international oil companies. Id.

228. *See* U.N. Conference on the Human Environment, *Declaration of the United Nations Conference on the Human Environment*, Principle 21, U.N. Doc A/CONF.48/14/Rev.1 (June 16, 1972); U.N. Conference on Environment and Development, *Rio Declaration on Environment and Development*, Principle 2, U.N. Doc.

the no-harm principle is reminiscent of provisions determining the scope of states' human rights obligations to the population "subject to [their] jurisdiction"[229] or to "everyone within their jurisdiction."[230] The doctrines and case law in international human rights law have increasingly recognized that such wording imposed an extraterritorial obligation of restraint.[231] Thus, Marko Milanovic suggested that, even though an individual state has no general positive obligations to protect the human rights of everyone in the world, it does have negative obligations (accompanied by prophylactic and procedural positive obligations) to respect human rights when, and inasmuch as, it does act abroad.[232] In this sense, the ECtHR confirmed in *Al Skeini v. The UK* and subsequent cases, most recently *Jaloud v. The Netherlands*, that states had extraterritorial obligations when they were actively involved in overseas operations, in particular in a case involving the presence of British troops in Iraq.[233] Likewise, exploration, production and distribution of fossil fuels overseas could, at least when they are directly imputable to a state, be considered activities within this state's "jurisdiction and control," hence within the scope of the no-harm principle.[234]

On the other hand, nothing in the wording of the general mitigation obligations under the UNFCCC, the Kyoto Protocol or the Paris Agreement gives any clear indication of the extraterritorial scope of negative obligations.[235] For instance, UNFCCC article 4(1) (b) calls all states to implement "national . . . programmes containing measures to mitigate climate change" without specifying whether these programs could be applied extraterritorially, at least as a limitation to states' own

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A/CONF.151/26/Rev. 1 (Aug. 12, 1992); The Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 I.C.J. Rep. 226, ¶ 29 (July 8, 1996).

229. ICCPR, *supra* note 158, art. 2(1).

230. ECHR, *supra* note 156, art. 1.

231. *See, e.g.*, Malcolm Langford et al., *Introduction: An Emerging Field*, *in* GLOBAL JUSTICE, STATE DUTIES: THE EXTRATERRITORIAL SCOPE OF ECONOMIC, SOCIAL AND CULTURAL RIGHTS IN INTERNATIONAL LAW 3, 3-6 (Malcolm Langford et al. eds., 2013).

232. *See* MARKO MILANOVIC, EXTRATERRITORIAL APPLICATION OF HUMAN RIGHTS TREATIES: LAW, PRINCIPLES, AND POLICY 210 (2011).

233. *See* Al-Skeini v. the United Kingdom, 211-IV Eur. Ct. H.R. 99, especially the concurring opinion of judge Bonello; *see also* Jaloud v. Netherlands, App. No. 47708/08, Eur. Ct. H.R. (2014) *available at* http://hudoc.echr.coe.int/eng?i=001-148367 (last visited Nov. 13, 2016) (Spielmann, J. concurring).

234. Thus, McCorquodale and Simons suggest that the generally high threshold of "effective control" in extraterritorial contexts could be met "in rare cases with respect to wholly state-owned corporations." McCorquodale, *supra* note 136, at 609.

235. *See* Kyoto Protocol, *supra* note 21, art. 3(1).

actions.[236] Yet, according to the Vienna Convention on the Law of Treaties, a treaty should be interpreted in good faith with consideration of its context and "in the light of its object and purpose."[237] The ultimate objective of the UNFCCC regime to "prevent dangerous anthropogenic interference with the climate system"[238] seems incompatible with a strict territorial limitation of mitigation obligations. More generally, the object and purpose of the UNFCCC regime could be defined as a collective effort toward compliance with the no-harm principle, which is explicitly recalled in the preamble of the UNFCCC, extending to all activities within a state's "jurisdiction or control."[239] Therefore, mitigation obligations under the UNFCCC regime could also be construed as involving extraterritorial negative obligations – an obligation for states not to cause, by their own actions, including through attributable conduct of NFFCs, excessive greenhouse gas emissions overseas.

B. Aid or assistance to other states

The UNFCCC regime does not contain any measures to directly limit or reduce the production of fossil fuels in order not to hinder participation by states whose economies are highly dependent on fossil fuel production.[240] To the contrary, the UNFCCC recognizes the "specific needs and concerns" of "[c]ountries whose economies are highly dependent on income generated from the production, processing and export . . . of fossil fuels. . ."[241] Thus, while encouraging transition to alternative sources of energy and alternative economic activities, the UNFCCC regime clearly acknowledges the particular difficulties that this

236. *See also* UNFCCC, *supra* note 5 art. 4(2) (a) (developed states); Kyoto Protocol, *supra* note 21, art. 10(b) (all parties). The only exception is, possibly, art. 3(1) of the Kyoto Protocol, which refers to states "aggregate anthropogenic . . . emissions." *Id.* at 3(1). While this aggregate is not defined in the treaty, it is widely understood to refer specifically to emissions originating within the state's territory. Another interpretation would result in the double-accounting of states' extraterritorial emissions, which is incompatible with the approach of the Kyoto Protocol. *Id.*

237. VCLT, *supra* note 223, art. 31(1).

238. UNFCCC, *supra* note 5, art. 2.

239. *Id.* at recital 9. In partial support of considering the UNFCCC regime as a collective effort toward compliance with the no-harm principle, the arbitral award in the Iron Rhine Case declared that a principle of general international law that the preventive principle "applies not only in autonomous activities but also in activities undertaken in implementation of specific treaties between the Parties." Iron Rhine ("Ijzeren Rijn") (Belg. v. Neth.), 27 R.I.A.A. 37, 116 ¶ 222 (Per. Ct. Arb. 2005).

240. Daniel Bodansky, *The United Nations Framework Convention on Climate Change: A Commentary*, 18 YALE J. INT'L L. 451, 509 (1993).

241. UNFCCC, *supra* note 5, art. 4(8) (h).

will present for certain states.[242]

Nevertheless, state responsibility could arise in the case of states, which, often through NFFCs, provide fossil fuels to other states, thus making it easier for those states to produce excessive greenhouse gas emissions in breach of their obligations arising from either the no-harm principle or the UNFCCC regime. This responsibility of a state in connection with the act of another state is recognized in article 16 DARSIWA:

A State which aids or assists another State in the commission of an internationally wrongful act by the latter is internationally responsible for doing so if:

(a) that State does so with knowledge of the circumstances of the internationally wrongful act; and

(b) the act would be internationally wrongful if committed by that State."[243]

This approach is based on an understanding that fossil fuel companies facilitate greenhouse gas emissions by other actors through the provision of fossil fuels. The ILC's Commentary specifies that responsibility can be established for aid or assistance for conducts such as "knowingly providing an essential facility or financing the activity in question,"[244] a role that NFFCs fulfill in many cases by investing in exploration or production facilities. Responsibility for aiding and assisting has, in particular, been identified in relation to the provision of weapons, including chemical weapons[245] and conventional weapons, delivered to states that had been found to be committing serious human rights violations,[246] where they were recognized through specific treaty provisions.[247]

Such circumstances are similar to the provision of fossil fuels to states that have not taken sufficient measures to mitigate their greenhouse gas emissions. However, an issue remains that the combustion of fossil fuels is not per se prohibited under international law and characterizing excessive greenhouse gas emissions raises difficult questions of

242. *See, e.g.*, *Id.* art. 4(10).

243. DARSIWA, *supra* note 77, art. 16.

244. *Id.* art. 16, commentary ¶ 1.

245. In particular, against the United Kingdom and then Sudan, both accused of providing chemical weapons to Iraq. *See id.* art. 16, commentary ¶ 7.

246. *See id.* art. 16, Commentary, ¶ 9.

247. *See* Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on Their Destruction, 1974 UNTS 317; *Arms Trade Treaty* as adopted by the UN General Assembly, GA Res 67/234B (April 2, 2013).

threshold.[248] Therefore, the responsibility of a state for aiding or assisting others in activities that involve excessive greenhouse gas emissions could be most convincingly invoked in circumstances involving large deliveries of fossil fuels to states considered to be in flagrant breach of their international obligations under the UNFCCC or the no-harm principle.

The ILC's commentary makes it clear that "[t]here is no requirement that the aid or assistance should have been essential to the performance of the internationally wrongful act; it is sufficient if it contributed significantly to that act."[249] Consequently, the possibility that other companies (including purely private ones) could have played the same role absent the NFFC's involvement does not preclude responsibility for aiding or assisting. Yet, the remedial obligations of a state that aids and assists another state might not extend to compensate for the act itself if that act could have been committed without the provision of such aid and assistance.[250] The state that aids or assists others in emitting excessive greenhouse gas through its NFFC is mostly under an obligation to cease the continuing internationally wrongful act and to offer guarantees of non-repetition, and only under very limited remedial reparations.

C. Prohibited economic incentives

Many states have created economic incentives that facilitate or encourage the production or consumption of oil, gas or coal.[251] Such incentives are generally intended either at fostering economic development or at achieving more specific social objectives to the benefit of disadvantaged populations.[252] These incentives rarely take the form of

248. *See* Mayer, *supra* note 29, ¶ 26; *see also* Henry Shue, *Subsistence Emissions and Luxury Emissions*, 15 L. & POL'Y 39 (1993) (suggesting a distinction between subsistence emissions and luxury emissions – a morally strong distinction but, naturally, one which is difficult to implement. But the difficulty in determining the specific threshold for tolerable conducts cannot be invoked to deny the existence of intolerable conducts. There may be a continuum of situations and yet some polar opposites. Human respiration (a somewhat anecdotal source of greenhouse gas) is obviously justified by the most immediate necessity, while at least some industrial greenhouse gas emissions are certainly not justified – whether in law or in ethics).

249. DARSIWA, *supra* note 77, art. 16, Commentary, ¶ 5.

250. *Id.* art. 16, Commentary, ¶¶ 1 & 10.

251. DAVID COADY ET AL., HOW LARGE ARE GLOBAL ENERGY SUBSIDIES? (2015), *available at* https://www.imf.org/external/pubs/ft/wp/2015/wp15105.pdf (last visited Nov. 8, 2016).

252. DAVID VICTOR, THE POLITICS OF FOSSIL FUEL SUBSIDIES (2009) (discussing the efficiency of these economic incentives and the influence of particular pressure groups in their creation). Other authors – often from emerging or developing economies – have argued that such subsidies were sometimes necessary. *See* Boqiang Lin & Zhujin Jiang, *Estimates of Energy Subsidies in China and Impact of Energy Subsidy Reform*, 33 ENERGY ECONOMIES 273 (2011) (noting in their abstract that "[f]or a transitional economy such as China, some

direct per-unit cash payment because of the significant transaction costs that such subsidies would involve and because governments usually prefer to avoid a direct budget allocation to avoid political criticisms.[253] Rather, they are usually conveyed through "soft budget" measures such as price or market controls, or the provision of capital with preferential conditions.[254] These measures often benefit or otherwise involve state-owned enterprises. As a matter of fact, the mere provision of public investments in particular companies involves, in and by itself, financial support to the fossil fuel sector.[255] Oil and gas exploration, in particular, require substantial capital investments in which, as discussed before, states have played no small role.[256]

The complex relations that often develop between states and NFFCs make it difficult to define, value and otherwise assess such indirect subsidies. IEA estimates that fossil fuel subsidies amounted to $548 billion in 2013, including $295 billion for oil.[257] Another recent study estimates that the G20 governments spend around $88 billion on annual fossil-fuel subsidies for exploration alone, including $49 billion through investments by state-owned enterprises, $23 billion through direct spending and tax breaks, and $16 billion through public finance.[258]

In the negotiations that led to the adoption of the UNFCCC, developing states opposed a general obligation for all states to phase out any such subsidies.[259] Therefore, the UNFCCC only contains an obligation for developed states to "[c]oordinate as appropriate with other such Parties, relevant economic and administrative instruments. . ."[260] The Kyoto Protocol imposed a clearer obligation over developed states

energy subsidies are reasonable, and sometimes even necessary for achieving social goals." Without entering this debate, it can be noted that, in many cases, such economic incentives are not the only possible means for states to pursue such goals).

253. *See, e.g.*, TREVOR MORGAN, ENERGY SUBSIDIES: THEIR MAGNITUDE, HOW THEY AFFECT ENERGY INVESTMENT AND GREENHOUSE GAS EMISSIONS, AND PROSPECTS FOR REFORM, ¶¶ 104, 205 (UNFCCC Secretariat, 2007).

254. *See, e.g.*, Sumit Majumdar, *Slack in the State-Owned Enterprise: An Evaluation of the Impact of Soft-Budget Constraints*, 16 INT. J. IND. ORGAN. 377, 379-80 (1998).

255. Benn Eifert, Alan Gelb & Nils Borje Tallroth, *The Political Economy of Fiscal Policy and Economic Management in Oil Exporting Countries* 5-10 (2002), *available at* http://elibrary.worldbank.org/doi/pdf/10.1596/1813-9450-2899 (last visited Nov. 8, 2016).

256. *Id.*

257. *World Energy Outlook, Fossil Fuel Subsidy Database*, INTERNATIONAL ENERGY AGENCY, *available at* http://www.worldenergyoutlook.org/resources/energysubsidies/ (last visited Nov. 8, 2016).

258. ELIZABETH BAST ET. AL., THE FOSSIL FUEL BAILOUT: G20 SUBSIDIES FOR OIL, GAS AND COAL 9 (2014), *available at* http://priceofoil.org/content/uploads/2014/11/G20-Fossil-Fuel-Bailout-Full.pdf (last visited Nov. 8, 2016).

259. Bodansky, *supra* note 240, at 510.

260. UNFCCC, *supra* note 5, art. 4(2) (e) (i).

to engage in the "[p]rogressive reduction or phasing out of market imperfections, fiscal incentives, tax and duty exemptions and subsidies in all greenhouse gas emitting sectors that run counter to the objective of the Convention. . ."[261] At the 2009 Pittsburgh summit of the G20, the leaders of the major industrial and emerging economies committed to "[r]ationalize and phase out over the medium term inefficient fossil fuel subsidies that encourage wasteful consumption."[262]

Vaguer yet more demanding obligations arise from the no-harm principle. At first sight, subsidizing fossil fuel production is certainly not the best way for states to come to terms with their obligation to ensure that activities within their jurisdiction do not cause extraterritorial environmental damage. Such subsidies are incompatible with the no-harm principle, at the very least, when they are created by a state already in breach of this principle and are not counterbalanced by other measures. In particular, these measures could be analyzed as a breach of the obligation of a state responsible for a continuing internationally wrongful act to take measures "to cease that act" and "to offer appropriate assurances and guarantees of non-repetition."[263] In rare hypotheses, the wrongfulness of economic incentives could perhaps be precluded by invoking particular circumstances, especially in the case of the poorest states with the most immediate need for economic development and whose overall greenhouse gas emissions remain relatively low.[264] However, many other economic incentives, including the massive indirect subsidies of certain emerging economies to their NFFCs,[265] may be an infraction of the no-harm principle and the specific obligations under the UNFCCC regime or the Pittsburg summit declaration.

D. Prohibited communication strategies

State responsibility could also arise in situations where NFFCs take an active role in self-serving strategies that go against relevant international obligations of states, in particular by adopting deceiving

261. Kyoto Protocol, *supra* note 21, art. 2(1) (a) (v).

262. *See* Leaders Statement: The Pittsburgh Summit, ¶ 29 (Sept. 24-25, 2009).

263. DARSIWA, *supra* note 77, art. 30.

264. *See Id.* art. 25; Mayer, *supra* note 25, ¶ 26 (discussing DARSIWA).

265. *See, e.g.*, Lin & Jiang, *supra* note 251; Boqiang Lin & Xiaoling Ouyang, *A Revisit of Fossil-Fuel Subsidies in China: Challenges and Opportunities for Energy Price Reform*, 82 ENERGY CONVERSION & MGMT. 124 (2014); USHA C. V. HALEY & GEORGE T. HALEY, SUBSIDIES TO CHINESE INDUSTRY: STATE CAPITALISM, BUSINESS STRATEGY, AND TRADE POLICY 44 (Oxford Univ. Press eds., 2013); *see also* Donald L. Losman, *The Rentier State and National Oil Companies: An Economic and Political Perspective*, 64 THE MIDDLE EAST JOURNAL 427, 434 (2010) (noting that "The rates charged for gasoline at the pump are almost universally subsidized in the Gulf region as well as in other rentier states such as Venezuela").

discourses that tend to deny scientific evidence, or unduly emphasize uncertainties about anthropogenic climate change, or by actively lobbying against measures taken by states to implement their international obligations. NFFCs that constitute a "state in the state," perhaps more particularly in developing states with fragile political structures, are likely to have a strong influence on the government's position in international negotiations and domestic climate change policies.[266] But states' involvement is not limited to these national companies, and non-negligible public moneys have been invested in companies such as ExxonMobil, Chevron and BP,[267] whose involvement in climate denial campaigns and political lobbying has been well documented.[268] Even though such investments seek economic diversification rather than control and remain generally limited to one-digit shares in such companies, any financial involvement of the state in companies that foster deceiving communication strategies comes in tension with the fulfillment of states' obligations under the UNFCCC regime and the no-harm principle.

Through their adoption of diverse instruments within the UNFCCC regime, states have not only recognized the reality of climate change and its anthropogenic causes; they also committed to raise awareness and, thereby, facilitate public support to the necessary measures of mitigation. Thus, Article 6 of the UNFCCC defines an obligation for all states to "[p]romote and facilitate . . . [t]he development and implementation of educational and public awareness programmes on climate change and its effects" as well as "[p]ublic access to information. . ."[269] The Kyoto Protocol and the Paris Agreement contain similar provisions.[270] Successive decisions of the conference of the parties emphasized that

266. In Iran prior to Petroleum Act of 1987, for instance, National Iran Oil Company was the main authority responsible for all petroleum activities in the country. *See* Nima Nasrollahi Shahri, *The Petroleum Legal Framework of Iran: History, Trends and the Way Forward*, 8 CHINA AND EURASIA F. Q. 111 (2010). Gazprom, somewhat similarly, exerts huge influence on its regulator, the Russian Federal Tariff Service. Nadeja Victor & Inna Sayfer, *Gazprom: The Struggle for Power*, in OIL AND GOVERNANCE: STATE-OWNED ENTERPRISES AND THE WORLD ENERGY SUPPLY, *supra* note 11, at 657.

267. HEEDE, *supra* note 37 (discussing GhG data). State investments were retrieved from NASDAQ, Morningstar, and public disclosure documents.

268. *See* Riley E. Dunlap & Aaron M. McCright, *Organized Climate Change Denial, in* THE OXFORD HANDBOOK OF CLIMATE CHANGE AND SOCIETY 144 (John S. Dryzek, Richard B. Norgaard & David Schlosberg eds., 2011); INFLUENCEMAP, BIG OIL AND THE OBSTRUCTION OF CLIMATE REGULATIONS (2015), *available at* http://influencemap.org/site/data/000/099/InfluenceMap_Oil_Sector_October_2015.pdf (last visited Nov. 14, 2016).

269. UNFCCC, *supra* note 5, ¶ 6(a) (i).

270. Kyoto Protocol, *supra* note 21, art. 10(e); Paris Agreement, *supra* note 18, art. 12.

education, public awareness and knowledge play a fundamental role in meeting the ultimate objective of the Convention.[271]

Comparable requirements can be deduced from the no-harm principle, in conjunction with the law of state responsibility. States that are responsible for ongoing excessive greenhouse gas emissions, hence a continuing wrongful breach of the no-harm principle, are under an obligation to cease that act and to offer appropriate assurances and guarantees of non-repetition.[272] Further, they also have remedial obligations, including the "obligation to give satisfaction for the injury caused by that act," for instance through "an acknowledgement of the breach, an expression of regret, a formal apology or another appropriate modality."[273] The conduct of a state actively involved in climate change denial strategies is incompatible with the respect of such obligations.

Under either the UNFCCC regime or the no-harm principle, arguments for state responsibility are relatively straightforward when a NFFC adopts a deceiving communication strategy and its conduct can be directly attributed to the state. Beyond the case of a direct attribution, however, it can reasonably be argued that such corporate strategies – seeking immediate economic gains at the cost of hindering responses to the greatest environmental problem of our time – go so directly against the object and purpose of the UNFCCC regime and the rationale of the no-harm principle that just *any* financial participation of the state acquired or maintained with knowledge of the circumstances would in and by itself constitute a breach of the obligation of the state to perform its obligations in good faith.[274]

271. Framework Convention on Climate Change Dec. The Lima Ministerial Declaration on Education and Awareness-raising 20th Sess. 19/CP.20 (Dec. 12, 2014); Framework Convention on Climate Change Dec. Doha Work Program on Art. 6 of the Convention 37th Sess. 15/CP.18, (Dec. 1, 2012); Framework Convention on Climate Change Dec. Progress in, and ways to enhance, the implementation of the amended New Delhi work programme on Article 6 of the Convention 16th Sess. 7/CP.16 (Mar. 15, 2010); Framework Convention on Climate Change Dec. New Delhi work programme on Article 6 of the Convention 13th Sess. 9/CP.13 (14 Mar. 2008); Framework Convention on Climate Change Dec. 21 Sess. 7/CP.10, (Dec. 13, 2015); Framework Convention on Climate Change Dec. New Delhi work programme on Article 6 of the Convention 37th Sess. 11/CP.18, (Dec. 1, 2012).

272. DARSIWA, *supra* note 77, art. 30.

273. *Id.* art. 37; *see* Benoit Mayer, *Climate Change Reparations and the Law and Practice of State Responsibility*, 7 ASIAN J. INT'L L. 185 (2017).

274. Bases for such an interpretation of the UNFCCC regime include VCLT, *supra* note 223, art. 26 (stating "[e]very treaty in force is binding upon the parties to it and must be performed by them in good faith"); *id.* art. 31(1) (stating "[a] treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose").

E. Incompatible development of vested interests

Perhaps the most problematic aspect of state ownership in the fossil fuel sector relates however to its likely long-term repercussions for the definition of state interests. The oil and gas sector, in particular, relies on expansive investments, including for exploration or for the development of production and transport facilities.[275] Any government would be interested in such large investments, even when they are made by private companies, given their implications for employment, tax payment, energy security and balance of payments, among others. Yet, substantial public investments simply raise the stakes, making risks of loss or chances of gains of even greater political significance because of the greater involvement of the state. Interpersonal connections are also more likely to develop between a government and a state-owned company than with a purely private company.[276] It is noteworthy that similar conflicts of interests may arise at a personal level, when a state leader owns substantial stakes in fossil fuel companies[277] or when such companies are allowed to bring substantial financial support to a political campaign.[278]

Such conflicts of interests, either at the individual or collective level, are likely to hinder respect for the no-harm principle or fulfillment of the ultimate objective of the UNFCCC regime of preventing dangerous anthropogenic interference with the climate system. Both the no-harm principle and the UNFCCC regime require costly measures of implementation, which demand strong, morally courageous leadership. The need for a long process of implementation appears clearly through provisions of the UNFCCC such as the obligation for all parties to "[f]ormulate, implement, publish and regularly update . . . programmes containing measures to mitigate climate change,"[279] and, perhaps even

275. Steven Davis, Ken Caldeira & H. Damon Matthews, *Future CO2 Emissions and Climate Change from Existing Energy Infrastructure*, 329 SCI. 1330, 1333 (2010).

276. For a recent study focusing on state ownership arrangements in China, *see* Curtis J. Milhaupt & Wentong Zheng, *Beyond Ownership: State Capitalism and the Chinese Firm*, 103 GEO. L. J. 665 (2015).

277. In an isolated but particularly egregious example, the U.N. Security Council targeted Libyan National Oil Corporation with asset freeze sanctions due to being "under control of Muammar Qadhafi and his family, and potential source of funding for his regime." *See* Rep. of the Group of Experts on Libya., in letter dated Feb. 17, 2012 from the Panel of Experts on Libya established pursuant to resolution 1973 (2011), Addressed to the President of the Security Council, Annex II, U.N. Doc. S/2012/163 (Feb. 17, 2012).

278. Recently updated OECD Guidelines on Corporate Governance of State-Owned Enterprises tackle the issue of political contributions directly, stating, "SOEs should not be used as vehicles for financing political activities. SOEs themselves should not make political campaign contributions." OECD, *supra* note 50, at V.E.

279. UNFCCC, *supra* note 5, art. 4(1) (b); *see also* Kyoto Protocol, *supra* note 21, art. 10(b).

more clearly, in the objective of the Paris Agreement to foster national efforts which "will represent a progression over time."[280] States' collective commitment to limit global warming to 1.5 or 2 Degrees Celsius by the end of the 21st Century[281] involves a continuing obligation to negotiate individual commitments in good faith until such collective commitment can be honored.[282] Beyond climate change, it has often been suggested that fossil fuel, and other, companies have been able to influence states and societies in less-than-optimal economic and developmental pathways.[283] The preamble of the UNFCCC hints at this and "recogniz[es] that various actions to address climate change can be justified economically in their own right. . ."[284] This, in turn, suggests support to a tightening of relations between states and the fossil fuel sector.

The UNFCCC regime itself has developed as a continuing process of international negotiations towards always more ambitious mitigation action.[285] By ratifying the Framework Convention and agreeing to its ultimate objective of preventing dangerous anthropogenic interference with the climate system, states confirmed their obligation, arising from the no-harm principle, of negotiating, in good faith, adequate

280. Paris Agreement, *supra* note 18, art. 3.

281. *See id.* art. 2(1)(a); *see also* Rep. of the Conference of the Parties on its twentieth session, at Dec. 1/CP.20 ¶ 6 (Dec. 2014); Rep. of the Conference of the Parties on Its Nineteenth Session, at Decision 1/CP.19 ¶ 3 (Nov. 2013); Rep. of the Conference of the Parties on Its Eighteenth Session, at Dec. 2/CP.18 ¶ 2 (Nov. 2012); Rep. of the Conference of the Parties on Its Seventeenth Session, at Dec. 1/CP.17 ¶ 2 (Nov. 2011); Rep. of the Conference of the Parties on its sixteenth session, at Decision 1/CP.16 ¶ ¶ 1-2 (2010); Rep. of the Conference of the Parties on its thirteenth session, at Decision 1/CP.13 ¶ 4 (Dec. 2007).

282. In this sense, it appears clearly that the agreement that may be adopted in Paris in December 2015 will not be sufficient to fulfil this collective commitment. *See, e.g.*, UNFCCC Secretariat, Synthesis Report on the Aggregate Effect of the Intended Nationally Determined Contributions ¶ 39, FCCC/CP/2015/7 (Nov., 2015).

283. *See* Lisa Williams, LOWY INST. FOR INT'L POLICY, CHINA'S CLIMATE CHANGE POLICIES: ACTORS AND DRIVERS 13 (2014).

284. UNFCCC, *supra* note 5, at ¶ 18.

285. Thus, UNFCCC art. 4(2) (d) suggests negotiations of further mitigation obligations; and the first decision of the conference of the parties created the "Berlin mandate" to negotiate what would become the Kyoto Protocol. *See* Rep. of the Conference of the Parties on Its First Session, at dec. 1/CP.1 ¶ 2(a)-(b), U.N. Doc. FCCC/CP/1995/7/Add.1 (June 6 1995). In turn, the first decision of the parties serving as the meeting of the parties to the Kyoto Protocol initiated a process toward commitments for a second implementation period. *See* Rep. of the Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol on Its First Session, at dec. 1/CMP.1 ¶ ¶ 1, 3, U.N. Doc. FCCC/KP/CMP/2005/8/Add.1 (Mar. 30, 2006) (leading to the Doha Amendment); *see* Rep. of the Conference of the Parties on Its Seventeenth Session, at dec. 1/CP.17 ¶ 4, U.N. Doc. FCCC/CP/2011/9/Add.1 (Mar. 15 2012) (initiating negotiations on mitigation commitments applicable for the post-2020 that were initiated in 2011).

international responses to climate change.[286] Vested national interests in the fossil fuel sector do not necessarily prevent successful pursuance of international negotiations on climate change, but they are likely to hinder such negotiations. States have, in the past, refused to ratify climate change agreements that went against their vested interests, eluding any questioning of the legitimacy of these interests.[287] In support of this attitude, U.S. scholars have suggested that a climate change treaty should fulfill a condition of "International Paretianism: all states must believe themselves better off by their lights as a result of"[288] such a treaty. States are clearly less likely to "believe themselves better off by their lights"[289] as a result of a treaty on climate change mitigation if they command significant equity stakes in companies operating in the fossil fuel sector.

IV. COMING TO TERMS WITH STATES' INVOLVEMENT IN THE FOSSIL FUEL SECTOR

The previous section showed that state responsibility could arise, in certain circumstances, in relation to state ownership in the fossil fuel sector. A possible objection is that states have no real alternative that would really make a difference. This section aims to counter this likely objection by identifying desirable policy pathways. The first subsection discusses the option of a massive divestment of public finance from the fossil-fuel sectors, but it argues that states should lead rather than leave the sector. The second subsection explains how NFFCs could lead by example, in particular through developing and demonstrating the viability of new business practices. Thus, although states should not necessarily disengage from the fossil fuel sector, they should make use of their involvement to further their obligations under the UNFCCC regime and under the no-harm principle.

A. Leave it or lead it?

Nothing in the previous section suggested that *any* state ownership in the fossil fuel sector was, per se, a breach of states' obligations under

286. *See* Benoit Mayer, *State Responsibility and Climate Change Governance: A Light Through the Storm*, 13 CHINESE J. OF INT'L L. 539 (2014).

287. *See* S. Res. 98, 105th Cong., 143 CONG. REC. S8138-39 (July 25, 1997) (signifying that the U.S. Senate would not ratify a treaty that "would result in serious harm to the economy of the United States").

288. POSNER & WEISBACH, *supra* note 26, at 6. While state interests alone cannot be the basis for any meaningful cooperation on climate change mitigation, they are certainly a political constraint to take into account. *See* Benoît Mayer, *Climate Change and International Law in the Grim Days*, 24 EUR. J. INT'L L. 947, 953 (2013).

289. POSNER & WEISBACH, *supra* note 26, at 6.

international law. State responsibility could only arise in particular situations relating to the degree of the state's involvement and its evolution, or to the nature of the company's operations or business strategies. In short, ownership in the fossil fuel sector is legally perilous but not legally precluded.

As a matter of policy, however, states face an important strategic choice: whether they should leave the sector altogether.[290] In this regard, a large civil society campaign for divestment is currently being led by the NGO 350.org.[291] It is remarkable, however, that this campaign has not made any clear distinction between public and private investors.[292] While advocating for "enlightened private behavior,"[293] this campaign implies a denunciation of the failure of the state to take appropriate regulatory action.[294] As a journalist reported in Nature Climate Change, "[p]olicymakers are supposed to be taking the lead in delivering on the public interest, but on the issue of climate change, investors are taking matters into their own hands."[295]

Yet, many public institutions were targeted, including state-controlled universities and city administrations, as well as some sovereign wealth funds.[296] Some of these entities have already decided to divest from the fossil fuel sector,[297] for instance, the cities of San Francisco, Seattle and Portland in the United States, or Melbourne and Newcastle in Australia, and public academic institutions such as the Australian National University[298] and the London School of Oriental and

290. Within the divestment movement, some have suggested that "[p]eople of conscience need to break their ties with corporations financing the injustice of climate change." *See* Desmond Tutu, *We Need an Apartheid-Style Boycott to Save the Planet*, GUARDIAN (Apr. 10, 2014), *available at* www.theguardian.com/commentisfree/2014/apr/10/divest-fossil-fuels-climate-change-keystone-xl (last visited Nov. 7, 2016). As discussed below, many others are advocating more selective divestment.

291. *See, e.g.*, Julie Ayling & Neil Gunningham, *Non-State Governance and Climate Policy: The Fossil Fuel Divestment Movement*, CLIMATE POL'Y 3 (Regulatory Inst. Network, Working Paper No. 98, 2015).

292. When an explicit distinction was made between private investors-owned and state-owned companies, however, this was often to conclude summarily that the latter "are not vulnerable to divestment pressures." *Id*. at 4-5. Cases discussed below show that, at least, public institutions such as universities or municipalities have been very receptive to the divestment campaign.

293. *Id.* at 8.

294. *Id.*

295. Sonja van Renssen, *Market Watch: Investors Take Charge of Climate Policy*, 4 NATURE CLIMATE CHANGE 241 (2014).

296. *Divestment Commitments,* FOSSIL FREE *available at* http://gofossilfree.org/commitments/ (last visited Nov. 7, 2016).

297. *Id.*

298. *University to Divest Holdings in Seven Companies*, AUSTL. NAT'L U. (Oct. 3, 2014),

African Studies.[299] Other academic institutions refused, most notably Harvard University, despite a strong mobilization.[300] Defending her position, Harvard President Drew Faust suggested that "[d]ivestment pits concerned citizens and institutions against companies that have enormous capacity and responsibility to promote progress toward a more sustainable future,"[301] thus diminishing their influence within the fossil fuel industry. Harvard students sought a permanent injunction to require divestment from the Harvard Corporation before the Suffolk County Superior Court and again, in appeal, before the Massachusetts Appeals Court; both of which dismissed the complaint.[302]

The divestment campaign may play a role in raising awareness on climate change, but it is unlikely to find significant success in the public sector, and perhaps even less in the private sector. Even if some significant divestment did occur, it may be of little or no avail to the objectives of the UNFCCC regime or to compliance with the no-harm principle absent concomitant measures to reduce the demand for fossil fuels.[303] First, less capital in the fossil-fuel sector would likely displace supply for capital-intensive oil and gas production to labor-intensive coal production. As coal results in greater greenhouse gas emissions for the

available at http://www.anu.edu.au/news/all-news/university-to-divest-holdings-in-seven-companies (last visited Nov. 7, 2016).

299. Emma Howard, *Soas becomes first London University to Divest from Fossil Fuels*, GUARDIAN (Apr. 24, 2015), *available at* https://www.theguardian.com/environment/2015/apr/24/soas-becomes-first-london-university-to-divest-from-fossil-fuels (last visited Nov. 7, 2016). See also Benjamin Richardson, *Universities Unloading on Fossil Fuels: The Legality of Divesting*, 10 CARBON CLIM. L. REV. 62 (2016).

300. *See* Emma Howard, *Harvard Divestment Campaigners Gear Up for a Week of Action*, GUARDIAN (Apr. 13, 2015), *available at* https://www.theguardian.com/environment/2015/apr/13/harvard-divestment-campaigners-gear-up-for-a-week-of-action (last visited Nov. 7, 2016); *see also* E-mail from Adrian Orr, Chief Exec. Officer, NZ Super Fund, to Robert Ash, Green Party Adviser (Nov. 12, 2014), *available at* http://www.nzsuperfund.co.nz/sites/default/files/documents-sys/OIA%201361783%2012%20November%202014.pdf (last visited Nov. 7, 2016).

301. Drew Faust, *Fossil Fuel Divestment Statement* HARVARD.EDU (October 3, 2013), *available at* http://www.harvard.edu/president/news/2013/fossil-fuel-divestment-statement (last visited Nov. 7, 2016) (stating "we should think about how we might use our voice not to ostracize such companies but to encourage them to be a positive force both in meeting society's long-term energy needs while addressing pressing environmental imperatives").

302. Harvard Climate Justice Coal. v. President & Fellows of Harvard College, 32 Mass. L. Rptr. 529, 1 (Mass. Super. Ct. 2015); Harvard Climate Justice Coal. v. President & Fellows of Harvard College, 90 Mass. App. Ct 444 (October 6, 2016).

303. *See* Raj Thamotheram, *What Impact Could Divestment Have on Share Price and the Energy Sector?*, RESPONSIBLE INVESTOR (Apr. 23, 2014), *available at* http://www.responsible-investor.com/home/article/rt_ff/P1/ (last visited Nov. 11, 2016) (noting that "it is best to see divestment as one tool amongst others").

same quantity of energy produced than oil or gas, this would hinder, rather than facilitate, efforts towards climate change mitigation.

Second, while a lower supply of capital might result in a general increase in the price of fossil fuels, this would have social and economic consequences for the poorer states and communities, which are less responsible for climate change.[304] The repercussions of divestment would thus go against the principle of common but differentiated responsibilities, according to which developed states should take the lead in responses to climate change, and against the right of poorer states to development, both expressly recognized in the UNFCCC.[305]

Thirdly and overall, a significant public divestment from the fossil fuel sector as a whole would result in the loss of a great opportunity for states to make a contribution to climate change mitigation through sectoral leadership. Private investors with fewer moral scruples would likely replace public investors.[306] Instead of leaving the sector, states should arguably aspire to make use of their financial power and current involvement to develop new, more sustainable business models. Rather than "punishing" fossil fuel companies for producing the sources of energy on which our economies rely,[307] states could use NFFCs as an opportunity for responsible leadership by exercising their voice as shareholders.[308]

304. *See generally* Sunita Narain, *How Power Can Be Cleaned?* DOWNTOEARTH (Mar. 31, 2015) *available at* http://www.downtoearth.org.in/blog/how-power-can-be-cleaned-48976 (last visited Jan. 27, 2017). Not every mitigation policy would necessarily require a general increase in the price of fossil fuels or, at least, not rely mainly on the price of fossil fuel as a way of constraining consumption thereof. *Id.* Restriction on the use of fossil fuels by the most-wealthy populations and public financial support for sectorial mitigation efforts, for instance, could allow poorer populations to continue benefiting from relatively cheap fossil fuels for a certain period of time that could be used to reach a sufficient level of development. *Id.*

305. *See* UNFCCC, *supra* note 5, art. 3(4)-(5); U.N. Conference on Environment and Development, *Rio Declaration on Environment and Development*, U.N. Doc A/CONF.151/26/Rev.1 (Vol. 1), annex I (Aug. 12, 1992).

306. *See* Ayling & Gunningham, *supra* note 291, at 5.

307. Thus, the President of Harvard University, Drew Faust, refused to commit to divestment on the ground that "we might use our voice not to ostracize such companies but to encourage them to be a positive force both in meeting society's long-term energy needs while addressing pressing environmental imperatives." Faust, *supra* note 301; *see also*, Mike Hulme, *Why Fossil Fuel Divestment is a Misguided Tactic*, GUARDIAN (Apr. 17, 2015), *available at* http://www.theguardian.com/environment/2015/apr/17/why-fossil-fuel-divestment-is-a-misguided-tactic (last visited Nov. 16, 2016). While such arguments persuasively oppose full divestment from fossil fuel production, they do not rule out the opportunity of selective divestments as a way of advocating for good practices.

308. *See, e.g.*, Salar Ghahramani, *Sovereign Wealth Funds and Shareholder Activism: Applying the Ryan-Schneider Antecedents to Determine Policy Implications*, 13 CORP. GOVERNANCE 58 (2013); *see also* Benjamin J. Richardson, *Sovereign Wealth Funds and*

Exercising leadership through ownership does not exclude targeted divestment from certain companies in order to favor particular business practices – infusion that are more realistic and, if well calibrated, are more likely to induce significant sectoral changes. Some divestment advocates have particularly emphasized coal production, which has some anecdotal influence on public funders.[309] In particular, the Norwegian Pension Fund Global, the largest sovereign wealth fund in the world,[310] massively divested from coal companies after endorsement by the Norwegian Parliament.[311] Similar targeted divestments, against either coal production, or sometimes against the production of oil from tar sands, were made by public institutions such as the City of Oslo,[312] some of California's pension plans, and the University of California[313]

States could use targeted divestment as a way to exercise an influence on companies where they invest as a matter of economic diversification, as in the case of SWFs.[314] More influence can naturally be achieved through international cooperation, which could be based on some agreed upon guidelines for responsible investment in the fossil fuel sector.[315] This influence can be used to encourage good practices such as the selection of alternative sources or types of fossil fuels. It can also be

Socially Responsible Investing: An Emerging Public Fiduciary, 1 GLOBAL J. COMP. L. 125 (2012); Angela Cummine, *Ethical Sovereign Investors: Sovereign Wealth Funds and Human Rights*, *in* MAKING SOVEREIGN FINANCING AND HUMAN RIGHTS WORK 163, 165 (Juan Pablo Bohoslavsky & Jernej Letnar Černič eds., 2014).

309. *See* John Schwartz, *Norway Will Divest from Coal in Push Against Climate Change*, N.Y. TIMES (June 6, 2015), *available at* http://www.nytimes.com/2015/06/06/science/norway-in-push-against-climate-change-will-divest-from-coal.html (last visited Nov. 11, 2016).

310. SWFI, SOVEREIGN WEALTH FUND RANKINGS (2016), *available at* http://www.swfinstitute.org/sovereign-wealth-fund-rankings/ (last visited Nov. 16, 2016).

311. *See* NORGES BANK INV. MGMT., *supra* note 199; *see also* GOV'T PENSION FUND GLOBAL, RESPONSIBLE INVESTMENT 2014 72 (2014).

312. *See* Damian Carrington, *Oslo Divests from Coal Companies*, GUARDIAN (Mar. 2, 2015), *available at* http://www.theguardian.com/environment/2015/mar/02/oslo-divests-from-coal-companies (last visited Nov. 11, 2016).

313. Emma Howard, *California University Divests $200m from Coal and Tar Sands Holdings*, GUARDIAN (Sept. 10, 2015), *available at* http://www.theguardian.com/environment/2015/sep/10/california-university-divests-200m-from-coal-and-tar-sands-holdings (last visited Nov. 11, 2016).

314. *See, e.g.*, Andreas Follesdal, *Engagement, Divestment or Both? Conflicts and Interactions: The Case of the Norwegian Pension Fund*, *in* MAKING SOVEREIGN FINANCING AND HUMAN RIGHTS WORK (Juan Pablo Bohoslavsky & Jernej Letnar Černič eds., 2014); *see also* Eva van Der Zee, *Sovereign Wealth Funds and Socially Responsible Investment: Dos and Don'ts*, 9 EUROPEAN COMPANY L. 141, 141 (2012).

315. Many states have already espoused increased guidelines-based governance of their state ownership function. *See generally* INT'L WORKING GROUP OF SOVEREIGN WEALTH FUNDS, SOVEREIGN WEALTH FUNDS, GENERALLY ACCEPTED PRINCIPLES AND PRACTICES (2008).

used to discourage companies from adopting deceiving communication strategies and to make efforts to mitigate emissions induced by the production of fossil fuels (e.g. through flaring and transport). Yet, divestment should be in conformity with the principles adopted by the UNFCCC, including, in particular, the principles of common but differentiated responsibilities, and the need to support sustainable development in developing countries.[316] Divesting from coal could be a desirable policy for the supply of developed states, but less so for the supply of emerging economies that are in dire need of energy to support economic development and alleviate poverty.[317]

Further, states should consider adjustments to their ownership policies in order to reduce conflicts between their vested interests and their obligations arising from the no-harm principle and the UNFCCC regime. The regime can pursue this objective through ensuring a sufficient degree of independence between NFFCs and governments, rather than through complete divestment. Divestment is neither indispensable nor sufficient to reduce conflicting vested interests but, all other things being equal, ownership is likely to increase the influence of the fossil fuel enterprises over the government due to the financial, political and symbolic enmeshment it implies.[318] Yet, there are tremendous obstacles to divestments in cases of strong equity stakes of great economic importance to the investing state. Therefore, in many cases, a progressive reform of NFFCs appears as a more workable path towards a greener economy. Putting robust governance frameworks in place in NFFCs constitutes a step in the right direction, although certainly a rather incremental one, to hindering attempts from pressure groups to secure diverse privileges, in particular economic incentives, which run counter to the objective of mitigating climate change.[319]

316. UNFCCC, *supra* note 5, art. 3(1).

317. UNFCCC, *supra* note 5, recital 23.

318. *See, e.g.*, Wälde, *supra* note 54, at 195.

319. *See* Aldo Musacchio & Sergio G. Lazzarini, *Chinese Exceptionalism or New Global Varieties of State Capitalism*, *in* REGULATING THE VISIBLE HAND? THE INSTITUTIONAL IMPLICATIONS OF CHINESE STATE CAPITALISM 415-21 (Benjamin Liebman & Curtis Milhaupt eds., 2016) (discussing governance indices for national oil companies); *see, e.g.*, MICHAEL WHINCOP, CORPORATE GOVERNANCE IN GOVERNMENT CORPORATIONS (2005); Mariana Pargendler, *State Ownership and Corporate Governance*, 80 FORDHAM L. REV. 2917 (2012). For a closely related argument, the backlash following Volkswagen's emissions deceit mechanisms concentrated on the significance of corporate governance. *See, e.g.*, Sophia Grene & Madison Marriage, *Investors Ignored VW Hazard Lights*, FIN. TIMES (Sept. 28, 2015) *available at* https://www.ft.com/content/6af071a8-6205-11e5-a28b-50226830d644 (last visited Jan. 27, 2017); John Plender, *Poor Governance is Big Clue for Investors*, FIN. TIMES (Sept. 29, 2015), *available at* https://www.ft.com/content/41b1a0d6-65f8-11e5-97d0-1456a776a4f5 (last visited Jan. 27, 2017).

B. Leadership through ownership

Like any other conduct of the state, state ownership in the fossil fuel sector should seek to fulfill objectives of a general interest.[320] In this sense, the OECD Guidelines on Corporate Governance of State-Owned Enterprises, a leading instrument for best practices on state ownership, suggests that "[t]he ultimate purpose of state ownership of enterprises should be to maximise value for society. . ."[321] The document also recommends a plethora of concrete policy changes such as centralizing ownership functions, enhancing transparency, and ensuring greater board independence.[322] With a view of rationalizing state ownership, it provides that each state should spell out the rationale for ownership in a public policy document,[323] commit as "an informed and active owner,"[324] and ensure that the enterprises it owns "observe high standards of responsible business conduct."[325] Accordingly, NFFCs can be seen as not just a financial asset or a public relations liability, but also as a proxy for states to provide leadership in the fossil fuel sector.

As a branch of the state within the superstructure of the carbon economy, NFFCs present an opportunity for states to "lead by example,"[326] treading a path toward a greener economy. Encouragement of such sectoral leadership can be read in a provision of the Kyoto Protocol, which calls on developed states to implement "policies and measures" that encourage "appropriate reforms in relevant sectors."[327] Yet, while most of the emphasis has been put on market mechanisms, NFFCs have largely been eluded in current responses to climate change. As more efforts are needed to bridge the "ambition gap" between the objective of limiting global warming to 1.5 or 2 degrees Celsius by the end of the 21st Century and actual policies, all relevant policy pathways must now be activated.

Overall, market-based mechanisms are less likely to be successful in emerging economies, like China and India, which have recently committed to stringent mitigation obligations,[328] but where most of the

320. *See* DAG DETTER & STEFAN FÖLSTER, THE PUBLIC WEALTH OF NATIONS: HOW MANAGEMENT OF PUBLIC ASSETS CAN BOOST OR BUST ECONOMIC GROWTH (2015).

321. OECD, *supra* note 50, at 19.

322. *See id.* At 20, 26, 28.

323. *Id.* at 19.

324. *Id.* at 20.

325. *Id.* at 25.

326. CRC, *supra* note 191, ¶ 64.

327. Kyoto Protocol, *supra* note 21, art. 2(1) (vi).

328. *See U.S.-China Joint Announcement on Climate Change*, the White House (Nov. 11, 2014), *available at* http://www.whitehouse.gov/the-press-office/2014/11/11/us-china-joint-announcement-climate-change (last visited Nov. 8, 2016); *see Statement by Senior*

fossil fuel sector is comprised of state-owned companies.[329] Reporting on the first attempts at creating a market mechanism in China, an influential study has observed that most state-owned enterprises "concentrate on complying with regulatory requirements and have . . . low interest in trading emission credits as a form of financial investment."[330] In such economic context, ownership-based mechanisms might generate faster changes than market-oriented systems could achieve,[331] and large, centralized NFFCs can be a unique opportunity for rapid policy implementation.[332] Already, it was recently observed, "[v]arious policies launched by the Chinese bureaucracy rely on tasking the SOEs to proceed with policy implementation. . ."[333]

To reduce greenhouse gas emissions from energy supply, the Intergovernmental Panel on Climate Change noted that there are "options to replace unabated fossil fuel usage with technologies without direct GHG emissions, such as renewable and nuclear energy sources, and options to mitigate [greenhouse gas] emissions from the extraction, transport, and conversion of fossil fuels through increased efficiency, fuel switching, and [greenhouse gas] capture."[334] In connection with this, there are numerous ways NFFCs can, and we argue should, make a

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Advisor Brian Deese on China's Submission of Its Intended Nationally-Determined Contribution, WHITE HOUSE (June 30, 2015), *available at* http://www.whitehouse.gov/the-press-office/2015/06/30/statement-senior-advisor-brian-deese-china's-submission-its-intended (last visited Nov. 9, 2016); INDIA'S INTENDED NATIONALLY-DETERMINED CONTRIBUTION: WORKING TOWARDS CLIMATE JUSTICE 3 (2015), *available at http://www4.unfccc.int/submissions/INDC/Published%20Documents/India/1/INDIA%20INDC%20TO%20UNFCCC.pdf* (last visited Nov. 9, 2016).

329. Note that China, especially, has been gradually transforming its state ownership policies towards a market-based inclination. *See, e.g.*, Li-Wen Lin & Curtis J Milhaupt, *We Are the (National) Champions: Understanding the Mechanisms of State Capitalism in China*, 65 STAN. L. REV. 697, 697 (2013); *see, e.g.*, Lingling Wei, *China Economic Plan Calls for Mergers, Public Listings By 2020*, WALL ST. J. (Sept. 7, 2015), *available at* http://www.wsj.com/articles/china-reform-plan-calls-for-mergers-public-listings-by-2020-1441635645 (last visited Nov. 10, 2016).

330. Xiang Yu & Alex Y. Lo, *Carbon Finance and the Carbon Market in China*, NATURE.COM. (Dec. 18, 2014), *available at http://www.nature.com/nclimate/journal/v5/n1/full/nclimate2462.html* (last visited Nov. 10, 2016).

331. *See* Yingqi Liu & Ari Kokko, *Wind Power in China: Policy and Development Challenge*, 38 ENERGY POL'Y 5520, 5526 (2010).

332. *See* BERGSAGER & KORPPOO, *supra* note 69, at 58 (stating, "as they involve a limited number of actors, SOEs serve to simplify policy implementation and improve the central bureaucracy's control over implementation").

333. *Id.* at 57.

334. Thomas Bruckner et al., *Energy Systems*, *in* CLIMATE CHANGE 2014: MITIGATION OF CLIMATE CHANGE: WORKING GROUP III CONTRIBUTION TO THE FIFTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE 511, 527 (Ottmar Edenhofer et al. eds., 2015).

difference. A possible initiative for NFFCs includes decreasing the greenhouse gas intensity of supplied fossil fuels. This could, for instance, be done through implementing a preference for more efficient fuels (e.g. gas rather than coal) and a reduction in sectoral greenhouse gas emissions (e.g. flaring). NFFCs could also seek to diversify sources of energy, for instance by including a share of biofuels, and offsetting greenhouse gas emissions through carbon capture and storage. In the longer term, a coordinated commitment of ruling out the exploitation of certain reserves of fossil fuels could be considered under the leadership of NFFCs. More specific initiatives are detailed in the following, illustrated by good practices.[335]

First, NFFCs should adopt responsible public relations strategies – and many have already done so.[336] As discussed above, the adoption by an NFFC of deceiving communication strategies in an attempt to foster its immediate economic interests at the cost of collective national and international interests can raise the responsibility of the state under its obligation to raise awareness for climate change. State ownership in such "rogue" companies would also be misaligned with any consistent ownership policies. In particular, it would run directly counter to the objective of preventing dangerous anthropogenic interference with the climate system, accepted by states through their ratification of the UN Framework Convention on Climate Change. Beyond merely refraining from climate denial, NFFCs could be expected to take part in public relations campaigns raising awareness of climate change or promoting energy saving. For instance, Saudi Aramco adopted LED bulbs in all its premises and committed to public awareness programs on energy efficiency within Saudi Arabia.[337] Further, in the run-up to the Paris climate change conference, Saudi Aramco, PEMEX, Statoil, and some private fossil fuel corporations signed the "Oil & Gas Climate Initiative Joint Collaborative Declaration" to express their "collective support for

335. We have not always been able to verify the good practices mentioned in the following. Many of these practices were reported by the NFFCs themselves. Our argument, however, does not concern these concrete measures of particular NFFCs, but rather the options reasonably available to these companies.

336. *See, e.g.*, *Sustainable Production*, SAUDI ARAMCO, available at http://www.saudiaramco.com/en/home/our-business/sustainable-production.html (last visited Nov. 10, 2016); *see Climate Change*, CNPC, available at http://www.cnpc.com.cn/en/climate/common_index.shtml (last visited Nov. 10, 2016); *see Can an Oil and Ga Company be Part of a Sustainable Energy Future?*, STATOIL, *available at* http://www.statoil.com/en/environmentsociety/pages/default.aspx (last visited Nov. 10, 2010).

337. *Environment*, SAUDI ARAMCO, *available at* http://www.saudiaramco.com/en/home/citizenship/environment.html (last visited Nov. 7, 2016).

an effective [global] climate change agreement."[338] By adopting such responsible public relations strategies, NFFCs should actively participate in efforts to raise awareness about climate change.

Second, NFFCs should strive to reduce greenhouse gas emissions generated by their own activities, thus leading by example and developing institutional awareness of the need to mitigate climate change. Particularly, the IPCC noted the possibility of reducing direct greenhouse gas emissions from the fossil fuel sector through "the capture or oxidation of coal bed methane, the reduction of venting and flaring in oil and gas systems, as well as energy efficiency improvements and the use of low-GHG energy sources in the fuel chain."[339] Flaring and fugitive emissions were estimated to represent a daunting 6% of global greenhouse gas emissions in 2010.[340] The "Zero Routine Flaring by 2030" initiative, which has support from six large NFFCs and seven private companies, is currently seeking to reconcile economic and environmental rationales.[341] Measures that are first adopted to improve the economic efficiency of a company may then contribute to developing an institutional commitment to climate change mitigation. Thus, Mexico's PEMEX reforms of its operations in the early 2000s, financed in part by the Clean Development Mechanism, were described as having developed a "forward-looking approach to climate change [that] made it a leader within [the] government, within the Mexican private sector, and within the region."[342]

Third, NFFCs should show a clear preference for fossil fuels with lower carbon intensity. For instance, the carbon content of natural gas per unit of energy produced is roughly half that of a coal of average quality.[343] The decision of power plant operators to switch to less carbon intensive fossil fuels may be induced by the supply, hence by public

338. *Oil and Gas CEOs Jointly Declare Action on Climate Change*, OIL & GAS CLIMATE INITIATIVE (Oct. 16, 2015), *available at* http://www.oilandgasclimateinitiative.com/news/oil-and-gas-ceos-jointly-declare-action-on-climate-change (last visited Nov. 7, 2016).

339. Bruckner et al., *supra* note 334, at 517.

340. David G. Victor et al., *Introductory Chapter*, *in* CLIMATE CHANGE 2014: MITIGATION OF CLIMATE CHANGE: WORKING GROUP III CONTRIBUTION TO THE FIFTH ASSESSMENT REPORT OF THE INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *supra* note 334 at 111, 123 (Ottmar Edenhofer et al. eds., 2015). Flaring takes place at oil wells and rigs, in refineries and chemical plants, but also at landfills. *Id.*

341. *See Zero Routine Flaring by 2030*, WORLD BANK (Aug. 18, 2016), *available at* http://www.worldbank.org/en/programs/zero-routine-flaring-by-2030 (last visited Nov. 7, 2016). The NFFCs involved are Kuwait Oil Company, Qatar Petroleum, SNH (Cameroon), SOCAR, Sonatrach and Statoil. *Id.*

342. Simone Pulver, *Climate Change Politics in Mexico*, *in* CHANGING CLIMATES IN NORTH AMERICAN POLITICS: INSTITUTIONS, POLICYMAKING, AND MULTILEVEL GOVERNANCE 25, 39 (Henrik Selin & Stacy D. VanDeveer eds., 2009).

343. *See* Bruckner et al., *supra* note 334, at 527.

investments in exploration, production and distribution. At the same time, however, NFFCs should also limit the amount of energy used during exploration, extraction and transport of fossil fuels, which currently represents an estimated 5-10% of total fossil fuel-related greenhouse gas emissions.[344] As such, these companies should generally abstain from projects that have a particularly low energy return on investment (that is, projects where a great amount of energy would be necessary to extract any given unit of energy). As the most accessible reserves of fossil fuels are depleted, current and future extraction projects have an ever lower net energy return on investment, often below 10:1 for conventional oil, or even as low as 3:1 for "unconventional" oils extracted from oil sands or oil shale.[345] Likewise, while gas is often depicted as a cleaner source of energy given its relatively low carbon intensity, it has also increasingly been extracted through energy-intensive hydraulic-fracturing and horizontal-drilling technologies.[346] As mentioned, some public funds have recently divested from coal and, although less frequently, from unconventional fossil fuels. Similar orientations could also be mainstreamed within NFFCs.

Fourth, NFFCs could play an instrumental role in the development of Carbon Capture and Storage (CCS) techniques, which prevent carbon dioxide from entering the atmosphere by sequestrating it, generally in depleted oil and gas fields or deep saline aquifer formations.[347] Oil and gas companies possess some of the technologies and access to relevant geological sites to develop CCS[348]; in the long term, CCS may also offer a responsible form of economic diversification, or even reconversion for such companies. NFFCs, such as Norway's Statoil, have pioneered the development of key CCS technologies in the last decades;[349] Petrobras,[350]

344. *Id.* at 528.

345. *See* Megan C.Guilford et al., *A New Long Term Assessment of Energy Return on Investment (EROI) for U. S. oil and gas discovery and production*, 3 SUSTAINABILITY 1866, 1866 (2011); *see* Adam R. Brandt, Jacob Englander & Sharad Bharadwaj, *The Energy Efficiency of Oil Sands Extraction: Energy Return Ratios from 1970 to 2010*, 55 ENERGY 693, 693 (2013); *see* Alexander T. Dale et al., *Process Based Life-Cycle Assessment of Natural Gas from the Marcellus Shale*, 47 ENVTL. SCI. & TECH. 5459, 5459 (2013).

346. *See* Bruckner et al., *supra* note 334, at 527.

347. *See* Jon Gibbins & Hannah Chalmers, *Carbon Capture and Storage*, 36 ENERGY POL'Y 4317, 4317 (2008).

348. *See* Peter Viebahn, Daniel Vallentin & Samuel Höller, *Prospects of Carbon Capture and Storage (CCS) in China's Power Sector: An Integrated Assessment*, 157 APPLIED ENERGY 229, 240 (2015).

349. Klaas van Alphen et al., *The Performance of the Norwegian Carbon Dioxide, Capture and Storage Innovation System*, 37 ENERGY POL'Y 43 (2009).

350. BRAZILIAN ATLAS OF CO2 CAPTURE AND GEOLOGICAL STORAGE (João Marcelo Medina Ketzer et al. eds., 2014).

Petrochina and Sinopec,[351] as well as Saudi Aramco[352] (among others) are presently involved along with some state-owned power companies, in particular Saskpower.[353] Yet, most of the new CCS projects are operated by private companies.[354] This raises the question about a possibly greater involvement of NFFCs in the future.[355]

Fifth, even though it might mean a stretch from their core business, states could push their NFFCs to invest in renewable energies. Following development orientations defined by Brazil's military government in 1975, Petrobras has emerged as one of the pioneers in the production of ethanol from sugarcane and, in 2008, created a subsidiary company dedicated to the production of biofuels.[356] Other NFFCs such as Sinopec and Petrochina have invested some resources in support of ethanol, biodiesel and geothermal energy.[357] PetroVietnam created a subsidiary, Central Bio-Fuels, to produce ethanol, mostly for export.[358] Extending further away from its core business, Saudi Aramco invested in the production of solar and wind power.[359] The development of renewable energies may be an important national decision, particularly in countries that would otherwise rely heavily on importation of fossil fuels.[360] States

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351. Viebahn et al. *supra* note 348, at 240.

352. *Large-Scale CCS in Saudi Arabia*, GLOBAL CSS INST. (Aug. 5, 2015), *available at* https://www.globalccsinstitute.com/news/institute-updates/large-scale-ccs-saudi-arabia (last visited Nov. 21, 2016).

353. *Boundary Dam Carbon Capture Project*, SASKPOWER CCS (2015), *available at* saskpowerccs.com/ccs-projects/boundary-dam-carbon-capture-project/ (last visited Nov. 8, 2016).

354. *See generally The Global Status of CCS: 2015 Summary Report*, GLOBAL CCS INST. (2015).

355. *See id.*at 8.

356. *See* John Wilkinson & Selena Herrera, *Biofuels in Brazil: Debates and Impacts*, 37 J. OF PEASANT STUD. 749, 750 (2010); *Biofuel Production*, PETROBRAS, *available at* http://www.petrobras.com.br/en/our-activities/performance-areas/biofuel-production/ (last visited Nov. 9, 2016).

357. *Fighting Against Climate Change*, SINOPEC, *available at* http://www.sinopecgroup.com/group/en/socialresponsibility/Green/facc.shtml (last visited Nov. 9, 2016); PETROCHINA CO. LTD., SUSTAINABILITY REPORT (2014).

358. *See* Dao Dang Toan, *Vietnam's Central Bio-Fuels Produced 17,000 CU M of Ethanol Last Year*, PLATTS (Mar. 11, 2015), *available at* http://www.platts.com/latest-news/agriculture/hanoi/vietnams-central-bio-fuels-produced-17000-cu-26035487 (last visited Nov. 9, 2016).

359. Stevens, *supra*, note 65, at 187. In China, however, wind and solar energy has been developed by other state-owned enterprises specialized in energy generation. *See* Lixia Yao & Youngho Chang, *Shaping China's Energy Security: The Impact of Domestic Reforms*, 77 ENERGY POL'Y 131 (2015).

360. This rationale was apparently instrumental in Petrobras' strategy. Yet, as Petrobras started to make substantial investments to extract pre-salt oil from the Atlantic coast, it has recently tried to sell some of its assets in ethanol production. *See, e.g.*, Rodrigo Viga Gaier, *Brazil's Petrobras Mulls Sale of Ethanol Plants*, REUTERS (June 17, 2015) *available at*

that invest massively in the fossil fuel sector could certainly be expected to invest as much in support of renewable energies, thus developing and demonstrating the economic efficiency of such technologies and leveraging private investments.[361]

Sixth, NFFCs could take actions – communication, sectoral mitigation, project selection, CCS and development of renewable energies – beyond the territory of the state that owns them. The UNFCCC regime defines a set of obligations for developed states, in particular, to "promote, facilitate and finance" the transfer of "environmentally sound technologies and know-how" to help developing countries to reduce their own greenhouse gas emissions.[362] The Kyoto Protocol mentions in particular the transfer of such technologies that are "publicly owned."[363] A subsequent decision of the Conference of the Parties called on states to create "an environment conducive to private and public sector technology transfer."[364] NFFCs, in particular those owned by developed states, arguably have a special responsibility to facilitate the transfer of technologies to developing states.

State ownership policies are no magic bullet, but they could make a difference as a component of the measures necessary to mitigate climate change. In addition to their economic directions, NFFCs often remain under genuine economic constraints. This was unfortunately demonstrated by New Zealand's state-owned coal producer Solid Energy, which recently went bankrupt following (among other events) some unsuccessful investments in renewable energies.[365] Nevertheless, some NFFCs do make a subtle but real difference – and could make an even greater one. Many of the practices detailed above could be analyzed as standard business orientations, seeking, for instance, to tackle internal

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http://www.reuters.com/article/petrobras-biofuels-sale-idUSE5N0XX00E20150618 (last visited Nov. 9, 2016); *see also Petrobras Lowers Biodiesel Production Capacity*, WORLD ETHANOL AND BIOFUEL REPORT (Oct. 8, 2015), *available at* http://www.agra-net.com/agra/world-ethanol-and-biofuels-report/biofuel-news/biodiesel/brazil—-petrobras-lowers-biodiesel-production-capacity—1.htm (last visited Nov. 9, 2016).

361. Thus, particular emphasis has long been put, within the UNFCCC regime, on the role of public-private partnership as a way for states to "stimulate the development of a wide range of mitigation and adaptation technologies and reduce their costs." Rep. of the Conference of the Parties on Its Thirteenth Session, at dec. 3/CP.13, U.N. Doc FCCC/CP/2007/6/Add.1 (Mar. 14, 2008).

362. UNFCCC, *supra* note 5, art. 4(5).

363. Kyoto Protocol, *supra* note 21, art. 10(c).

364. Rep. of the Conference of the Parties on Its Seventh Session, at dec. 4/CP.7 ¶ 12, U.N. Doc FCCC/CP/2001/13/Add.1 (Jan. 21, 2002).

365. *See* Michael Berry, *Solid Energy 'Wasted Millions,'* STUFF (Aug. 31, 2012), *available at* http://www.stuff.co.nz/business/industries/7583901/Solid-Energy-wasted-millions (last visited Nov. 9, 2016).

inefficiencies (e.g. Pemex) or to develop some corporate social responsibility (e.g. Saudi Aramco). In other cases, national interests were imposed by the state not as owner, but as regulator, for instance, through the imposition of quotas of renewable energies (e.g. Brazil's oil sector, China's power sector) or of a carbon tax (e.g. in Norway).[366] Even in such cases, however, the readiness of the fossil fuel sector to implement such measures was likely one of the elements the state took into account. Statoil, for instance, had initiated studies on the feasibility of re-injection of carbon into the seafloor even before Norway imposed a carbon tax.[367] Thus, the imprint of state ownership appears not necessarily through a strong financial commitment to unprofitable projects, but rather through a more supportive attitude of fossil fuel companies to the objective of controlling greenhouse gas emissions in the general interest.

In the future, NFFCs and other forms of state ownership, for instance through sovereign wealth funds, could thus be used as a tool for state intervention in support of climate change mitigation.[368] The substantial capitalization of NFFCs can be used as a lever for "rogue" fossil fuel companies and a disincentive for the most carbon-intensive investments, while also supporting the rapid development of emerging renewable energies. The reconversion of NFFCs into the production of biofuel, renewable energies, or into CCS could suggest a pathway for diversification and reconversion, which other fossil fuel companies could follow, thus dissipating some of the political inertia that hinders the transition to a green economy. But state ownership could also enter more directly into international negotiations on climate change. As many states are realizing the need to de-incentivize the use of fossil fuels, for instance through cap-and-trade or more direct tax systems, political support for a reduction of the supply may be achieved, with a phasing out of the fuels that are most carbon intense or have the lowest net energy return on investment. As NFFCs control the greatest part of the global reserves of oil, gas and coal, international cooperation may one day be achieved to progressively phase out most of the production of fossil fuels.

366. Van Alphen et al., *supra* note 349, at 46 (noting "[t]he introduction of a carbon tax for offshore petroleum activities (approximately €40 per emitted ton of CO_2) triggered Statoil to investigate options for cost-effective CO_2 handling at their offshore Sleipner West gas field (F2), including the underground storage of CO_2 in geological formations").

367. *See* Olav Kaarstad, *Emission-Free Fossil Energy from Norway*, 33 ENERGY CONVERSION & MGMT. 781, 781-82 (1992).

368. *See* Danyel Reiche, *Sovereign Wealth Funds as a New Instrument of Climate Protection Policy? A Case Study of Norway as a Pioneer of Ethical Guidelines for Investment Policy*, 35 ENERGY 3569 (2010).

CONCLUSION

Noting the NFFC's immense contribution to historical and current greenhouse gas, this article has suggested an analysis of state obligations arising from the UNFCCC regime and the no-harm principle in relation to their ownership in the fossil fuel sector. States never have to invest in the fossil fuel sector but if they decide to do so, their international law obligations – in particular their obligation to prevent dangerous anthropogenic interference with the climate system – involve particular constraints. So far, state ownership policies have not fully internalized the potential costs of climate change. On the contrary, NFFCs often embody policy incoherence and irresponsible uses of a state's fossil fuel resources with little consideration for global environmental externalities.[369] But while the conduct of NFFCs can sometimes be directly attributed to the state under the law on state responsibility, state ownership policies can more generally be conceived as opportunities for states to take the lead in the transition to a greener economy and, through an active involvement, make a positive difference. While so far they have been mostly part of the climate change *problem*, NFFCs should become an integral part of the policies taken by states in response to climate change. In some states, in particular emerging economies where most fossil fuel companies are state-owned (e.g. China, India), state ownership policies appear as some of the most important policy opportunities to rapidly limit and reduce domestic greenhouse gas production – being perhaps more urgently needed than a market-based mechanism.[370]

It is significant that 25 years of negotiations on climate change mitigation have shed little light on NFFCs or state-owned enterprises. Beyond the case of the fossil fuel sector, this article hints at a broader critique of a frequent tacit assumption in climate change law, which views the state almost exclusively as a regulator, as if all greenhouse gas emissions emanated from private companies in a market that defined its business practices without any state interference. This assumption relates to an emphasis on an individual's moral responsibilities. Alexander Zahar, for instance, recently argued that "[p]eople [(all people, although each to a different degree)] . . . are . . . responsible for the damage that happens through climate change."[371] The idea of individual

369. *See* Johnsson & Kjärstad, *supra* note 17, at 18.

370. *Cf.* Alex Wang, *Chinese State Capitalism and the Environment, in* REGULATING THE VISIBLE HAND? THE INSTITUTIONAL IMPLICATIONS OF CHINESE STATE CAPITALISM 251, 53 (Benjamin L. Liebman & Curtis J. Milhaupt eds., 2016) (noting "the possibility that SOEs will play a greater role in Chinese environmental reform than commonly thought").

371. Zahar, *supra* note 25, at 217-218.

responsibilities is, at first, slightly more attractive than attempts to attribute collective responsibilities to "a general category known as 'states.'"[372] States do not "act" rightly or wrongly; individuals do. The issue with individual responsibilities, however, is that individuals do not act in a vacuum: many of our day-to-day decisions are influenced or constrained by collective pathways.

Rather than attributing *moral responsibilities*, climate law needs to identify *causal responsibilities* – conduct that is instrumental in causing climate change and which can be reversed. The causal responsibility for the carbon lock-in is inherently collective. While states are organized political entities that are able to distribute responsibilities and to fulfill remedial obligations relatively effectively, attributing climate change to a pre-political collective – the private sector, companies, the consumers, the industrialized society, everyone in general, and no one in particular – does not allow for organized responses to tackle climate change. Ethical arguments would surely urge us to take meaningful spontaneous initiatives to tackle climate change, but the law of climate change needs to focus on the causal responsibilities of the state, as the best political organization to date to tackle global issues. *Within* states, the relevant political organs and individuals – governments, parliaments and courts, morally courageous political leaders, and individuals exercising public functions – need to take responsibility. Thus far, these individuals acting on behalf of the state – *our* organized political communities – have often supported the creation, development, maintenance, and defense of an unsustainable model of development, in particular – but not only – through ownership policies. As fossil fuels are extracted to be combusted and, just as much, roads are built to be driven, states have not yet taken the steps that they need to take urgently, not just to incentivize efforts by private actors, but also to break the carbon lock-in and lay the ground for a sustainable development.

372. Philip Allott, *State Responsibility and the Unmaking of International Law*, 29 HARV. INT'L L. J. 1, 13 (1988); *see also*, POSNER & WEISBACH, *supra* note 26, at 114.