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### Climate change, fossil fuels, and the energy transition in the Global South

*Governance pathways to leave fossil fuels underground*

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**5 Supply-side climate policy and fossil fuels in developing countries:  
A neo-Gramscian perspective**



## Note on publication<sup>45</sup>

As part of a Special Issue titled *Supply-side climate policy: Emerging lessons and next steps*, edited by Peter Newell and Angela Carter in *International Environmental Agreements: Politics, Law and Economics*, this article undertakes a content analysis of UNFCCC documents (NDCs and NCs) submitted by ten LMICs. It employs a neo-Gramscian approach, triangulated with ownership data of hydrocarbon extraction projects, to answer CSQ1 and CSQ5 (Table 1):

*CSQ1: How can energy transitions in the Global South be theorised?*

*CSQ5: How do LMICs frame their energy transition, and which narratives do they mobilise?*

## Overview

This article examines LMICs' perspectives on climate change mitigation and fossil fuel supply, analysing how they define their roles in the energy transition through UNFCCC submissions (NDCs and NCs). It represents the first application of a neo-Gramscian perspective to these documents, employing concepts such as hegemony, historical bloc, war of position, passive revolution, and *trasformismo* (see 2.4.2 and 5.2). Building on Chapter's 3 emphasis on justice and decolonising North-South dynamics, the analysis highlights how fossil fuel hegemony relies on coercion from States and fossil capital and consent of civil society through dominant narratives of growth and progress.

Using the World Bank's 2021 definition of LMICs and non-Annex I Parties to the UNFCCC (see 1.3.2 for the limitations), and gathering quantitative data on fossil fuel resources and production from Rystad and BP, I identified ten countries with significant involvement in fossil fuel, and analysed 50 documents (see 5.3 and Table 7). To address the documents' limitations (e.g., variable length/detail, underspecified guidelines and inconsistency across reports, absent ownership ties), and support the inferences, I gathered additional data on ownership of hydrocarbon projects and NOC activities.<sup>46</sup> The analysis clusters countries into different types of fossil fuel lock-in: established gas lock-ins (Algeria – OPEC – and Argentina); incipient lock-ins (Ghana and Kenya); prospective least-developed producers (Mozambique and Uganda); established coal lock-ins (India and South Africa); and potential leaders in LFFU (Brazil and China).

The paper discusses the frames (e.g., energy security, efficiency, import dependency), and narratives (e.g., just transition, diversification via fossil expansion) used in the documents, emphasising the resistance (e.g., RtD to resist supply cuts), accommodation (e.g., gas as a transition fuel), and counter-hegemony potential (e.g., leapfrogging and Southern agency). The global energy transition emerges as a *passive revolution*, in which

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<sup>46</sup> Due to limited publicly available coal data at the country level, supplementary data collection was restricted to hydrocarbons and NOCs (see 2.6.2.3 and Annex 12).

fossil fuel hegemony is sustained by a historical bloc (composed of States, national elites, companies, Northern governments and investors) that accommodates legitimate demands for development: the RtD instrumentally functions as a legitimising discourse, allowing incumbents to preserve FF as the basis for capital accumulation, economic expansion and development, while diluting the scope of transformation to address fossil fuel supply and climate change. The bridge narrative of gas exemplifies *trasformismo*: first framed as a cleaner substitute for coal and oil in the 1990s (also by the oil and gas companies), and later as the ideal complement to RES to provide baseload, it strengthens the bloc's power and policy capacity. By portraying gas as essential for energy security and affordability, the bloc neutralises the counter-hegemonic potential of increasingly affordable renewables, co-opting them within fossil fuel-dominant energy systems, leading to energy addition rather than FF displacement. This redirection has even affected countries with significant renewable capacity, such as Brazil and Kenya, channelling them toward new fossil infrastructure.

Ownership structures of hydrocarbon extraction assets reinforce this entrenchment. In the cases analysed, production rights are already in force (through concessions or production sharing contracts), with States, also through their NOCs, acting as nodal actors across scales to articulate the historical bloc's tactics and strategies. Project ownership varies, from predominantly domestic ownership (Algeria, Brazil) to foreign-led projects (Mozambique, Uganda), or mixed models (Argentina, South Africa). At the same time, certain countries (e.g., China and Brazil) hold potential to fundamentally transform their energy systems.

## **Conclusions**

The study reveals how LMICs submissions often prioritise fossil fuel expansion and energy addition over mitigation, framing development trajectories through the RtD. Their strategies, given the perception of affordable fossil fuel, leads to fossil expansion, justified on energy security and diversification grounds, export and import dependencies, and equity and responsibility. Pervasive narratives around fossil fuels have redirected countries' interests and plans toward fossil energy, increasing investments and entrenching fossil-based structures, resulting in varying forms of carbon lock-in.

At the governance level, countries openly discuss fossil fuel plans in their submissions to the Secretariat. However, LMICs insufficiently address fossil supply in their decarbonisation strategies, partly due to reporting limitations and partly to extraction ownership complexity (see above). Their reports to the UNFCCC reveal the political struggles of North-South climate governance (Chapter 3): although LMICs consistently call for Global North support, responses have been weak, while structural barriers in the global financial system, especially debt, coupled with higher costs of borrowing and weaker currencies, limit fiscal space and exacerbate stranded asset risks.

Ownership interdependencies with fossil capital significantly constrain States to pursue FF supply cuts. Nonetheless, the State remains a key arena for contestation and counter-

hegemonic possibilities. While some countries align with hegemonic narratives (e.g., OPEC countries like Algeria), others indicate desire for leadership and agency, articulating transformative narratives – for example, China’s leapfrogging, Brazil’s decarbonised leadership, South Africa and India’s just and inclusive transition – that could attract allies and engage in a war of position in the global energy transition. This spectrum of positions points to fissures in the historical bloc but also highlights persistent obstacles for alternatives, constrained by the broader structures of the global political economy and the bloc’s strategies.

### **Relation with thesis and possible discrepancies**

Given the focus on LMICs, I have not analysed how Global North’s NCs and NDCs deal with fossil fuel supply; therefore, I cannot infer whether the energy security framing is unique to the South. Nonetheless, energy addition is likely salient in both, reflecting rising demand associated with defence and AI needs.

Post-publication, I expanded the analysis to Bangladesh, Colombia, Indonesia, and Mexico (see Annex 5) which emerged in the case study selection process (see 2.6.1). These countries, not in the original paper’s dataset, feature in Chapter 6, with Colombia as a central case study in Chapter 7 (see 2.6.2.2). For the thesis, the paper:

- a) addresses KG1 and KG2 and operationalises the Global South overlapping non-Annex I status with LMIC classification (see 2.6.2.3);
- b) furthers the analysis of the RtD by (i) going beyond the historical and legal evolution of the concept described in Chapter 3 and the non-systematic discussion in Chapter 4, assessing it in terms of its strategic discursive deployment; (ii) advancing a structural-justice-oriented critique of enduring patterns of power to decolonise North-South approaches (Chapter 3), which continues in Chapter 6 and should not be read as blaming individual countries;
- c) by applying a neo-Gramscian lens, (i) complements the ICID model, (i) maps vested interests resisting LFFU and (iii) as part of CLIFF, identifies proactive and passive actors in energy transitions (see below); and
- d) feeds into the conceptual scheme (Figure 8; 8.2), identifying: (i) Global South as LMICs and non-Annex I, with proactive countries such as Brazil and China and more passive actors such as Argentina, Algeria, and NOCs; (ii) dependency on imported fuels, competitiveness in global markets, rising energy demand, energy security, sovereign debt and FF-related debt (i.e., unserviceable debt from LFFU), ownership structures and underestimation of stranded assets (resources, labour and infrastructure) as drivers; (iii) the historical bloc’s use of the RtD and gas as a transition fuel as key FF narratives which result in (iv) a policy context marked by energy addition and fossil and RES extractivism; (v) counter-hegemonic narratives in leapfrogging and RES-based development, and (vi) *trasformismo* and passive revolution as tactics for hegemonic redesign.



## 5.1 Introduction: Supply-side mitigation and developing countries

This article examines the perspectives that shape the approach of low- and middle-income countries (LMICs) to climate change mitigation and fossil fuel supply. Meeting the Paris Agreement's temperature objectives implicitly demands leaving fossil fuels underground (LFFU), which entails considerable reductions in their production. Most of the existing reserves should be left untapped (McGlade & Ekins, 2015; Trout et al., 2022; Welsby et al., 2021) stranding related investments, labour, and infrastructure (Ansari & Holz, 2020; Bos & Gupta, 2018, 2019; Caldecott, 2018). Compounding the justice issues involved in climate change, the problem of stranded assets and resources has acute equity implications since most reserves are in the Global South (BP, 2022b). These dilemmas have increasingly been addressed in the literature (Calverley & Anderson, 2022; Kartha et al., 2018; Lenferna, 2018; Muttitt & Kartha, 2020; Pye et al., 2020), tracing a clear link between supply-side climate policies and stranded assets (Kühne et al., 2022). However, until recently, supply-side measures received little attention (Lazarus & van Asselt, 2018; Le Billon & Kristoffersen, 2020; Pellegrini et al., 2021; Pellegrini & Arsel, 2022; Piggot et al., 2020; Rempel & Gupta, 2022), while fossil fuel production was largely absent in climate negotiations (Janzwood & Harrison, 2023).

Attention to often-overlooked developing country governments in supply-side policy is critical for two reasons (Heras & Gupta, 2024). First, developing countries are important in international mitigation policies. Due to their fossil fuel dependency and plans for continued economic growth, they account for nearly two-thirds of total annual emissions and will be responsible for virtually all future emissions growth (Fankhauser & Jotzo, 2018; Fuhr, 2021; Marquardt et al., 2023). The institutionalisation of mitigation efforts in the Global South needs to balance climate ambition with development challenges (Marquardt et al., 2023), but the conventional narrative of the RtD entails strategies that may result in stranded assets and carbon lock-in (Bos & Gupta, 2018; Gupta & Chu, 2018; Seto et al., 2016) and disparities between large emitters developing countries and poorer nations (Fuhr, 2021). Second, developing countries play a significant role in LFFU: states control most reserves (Lenferna, 2018), and governments have a major influence in boosting production (SEI et al., 2021). In non-OECD countries, governments ultimately own the potential losses arising from stranding fossil fuel-related assets (Semieniuk et al., 2022).

Against this background, the paper investigates the leaders and laggards in the climate change governance regime (Gupta, Vegelin, et al., 2022; Kalfagianni & Young, 2022) employing a neo-Gramscian analytical approach and situating the analysis in INEA's debates on the politics of multilateral environmental agreements (Kalfagianni & Young, 2022). Through a content analysis of documents submitted to the UNFCCC, the paper examines how ten different LMICs have defined their role in addressing climate change and LFFU, focusing on the supply side of mitigation policies and the energy sector. To my knowledge, no previous publications have investigated developing countries'

submissions to the UNFCCC from a neo-Gramscian perspective. Comparable studies employed critical discourse analysis in National Determined Contributions (NDCs) or examined producing countries' NDCs (Janzwood & Harrison, 2023; Jernnäs & Linnér, 2019; Mills-Novoa & Liverman, 2019). The paper proceeds as follows: 5.2 summarises the analytical approach; 5.3 outlines the methods; 5.4 presents the results of the analysis; 5.5 discusses the main trends; and 5.6 concludes.

## **5.2 Analytical approach: a neo-Gramscian framework**

Although the climate regime has mobilised policymaking, the latter has been inadequate to the scale of change required (Gupta, 2016; Stoddard et al., 2021), while the window to meet Paris targets is rapidly closing (IPCC, 2018). This leads to focusing on neglected features of the regime: power imbalances, developing countries' leadership, and incumbents' deliberate political strategies (Stoddard et al., 2021). Climate governance is shaped by negotiations and alliances within the UNFCCC regime, resulting in unequal and fragmented policies bound by macro-structures (D. L. Levy & Newell, 2002). Further, negotiations are embedded in wider power relations, between North–South and within the Global South.<sup>47</sup> The paper draws from neo-Gramscian scholarship in energy transition and Global Political Economy research (Ford & Newell, 2021; Newell, 2019; Winkler, 2020). The following briefly elucidates this analytical framework.

### **5.2.1 Key concepts: hegemony, historical bloc, war of position, passive revolution, and *trasformismo***

Antonio Gramsci's writings provide insights into the global political economy, illustrating inequalities and power imbalances in capitalism's uneven development (Bieler et al., 2015; Gramsci, 1971). His work delves into the inner dynamics of capitalism, exploring how states and capital are interdependent and maintain an unequal status quo (Gramsci, 1971), while also examining the establishment, preservation and occasional challenges to hegemony (Finkeldey, 2022).

Hegemony stands as Gramsci's most significant contribution to Marxist political theory (Cospito, 2015). Structurally linked to society's material base, it denotes a social class's leadership and domination within a political and economic system, relying on a combination of consent and coercion, key features which must be considered together (Cospito, 2016; Gramsci, 1971). To sustain hegemony, a ruling class must balance consent and coercion, projecting its interests as universal (as common sense) through civil society institutions (Gramsci, 1971; Levy & Egan, 2003),<sup>48</sup> forging coalitions,

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<sup>47</sup> The term 'Global South', while criticised for being elusive (Fuhr, 2021), still holds value as a "meta" and "relational" category (Berger, 2021; Haug et al., 2021), representing historically marginalised countries in the international system, with shared interest in a just and equitable climate governance, forming coalitions during climate discussions (Happaerts, 2015; Marquardt et al., 2023).

<sup>48</sup> In Gramsci's understanding, 'civil society' refers to the arena in which the consent component of hegemony is built, through ideological and cultural institutions such as the media, the education system and the Church, and contested (Gramsci, 1971).

compromises and ideologies that convey shared interests (D. L. Levy & Egan, 2003; D. L. Levy & Newell, 2002). However, hegemony is unstable and requires constant reinforcement by incumbent actors (Ford & Newell, 2021; Gramsci, 1971), through contestation and conciliation, without compromising on “the decisive nucleus of economic activity” (Gramsci, 1971, p. 161).

The dominant social group and allies form a historical bloc that wields state coercive and bureaucratic power, controls core economic activities, and garners civil society’s consent (D. L. Levy & Newell, 2005). The historical bloc refers also to the entire framework of state and society, wherein ideas and material conditions are dialectically intertwined, and it cannot be sustained in the absence of a hegemonic class (Cox, 1983; Finkeldey, 2022; Gramsci, 1971). It integrates material, organisational, and discursive elements to maintain and replicate production and meaning relations (D. L. Levy & Egan, 2003), relying on an accumulation strategy (a growth model) and a hegemonic project that underpin state power (Bieler & Morton, 2004; Jessop, 1983). Gramsci’s conception of the state is integral, encompassing both coercive and consensual components (political society and civil society, respectively) with which the ruling class maintains its hegemony (Gramsci, 1971). Coercion is a key characteristic of the state to maintain the legal and institutional structures of capitalism (Bieler et al., 2015; Huber, 2011). From this viewpoint, the state’s role is nodal (Morton, 2007), because the formation of a historical bloc is a national phenomenon that intertwines with international and global relations of power, resulting in nationally specific combinations (Gramsci, 1971) that facilitate the spread of capitalist relations on an international level (Bieler et al., 2015; Bieler & Morton, 2004). The historical bloc is dynamic and vulnerable to threats to its consensual legitimacy, which can lead to a “crisis of authority” (Ford & Newell, 2021; Gramsci, 1971, p. 210; Phelan et al., 2013). Counter-hegemonic struggles could take the form of a war of position, involving subaltern groups mobilising resources within the existing historical bloc to establish alternative institutions (Cox, 1983). This counter-hegemonic project, as a long-term strategy, seeks to gain allies in striving to universalise specific interests, while also developing organisational capacity and collective leadership (Ford & Newell, 2021; Haas, 2019; D. L. Levy & Newell, 2002; Winkler, 2020).

In response to crises of authority, the historical bloc may resort to a passive revolution: a ‘progressive restoration’ which adopts reformist measures without popular participation, to accommodate pressure from challengers and preserve established power relations (Bieler et al., 2015; Cox, 1983; Ford & Newell, 2021; Haas, 2019). *Trasformismo* is closely related. Gramsci identified it as a historical manifestation of the passive revolution, while neo-Gramscian scholars regarded it as a passive revolution strategy, as a deliberate tactic to prevent popular engagement (Cox, 1983; Ford & Newell, 2021), which neutralises counter-hegemonic ideas and co-opts subaltern leaders into hegemonic frameworks (Cox, 1983; Ford & Newell, 2021; Haas, 2019). This tactic exposes the historical bloc’s fragility as it mobilises all available resources to ensure that the

adjustments have no significant impact on the status quo (Cox, 1983; Ford & Newell, 2021). Concepts like passive revolution and *transformismo* hold relevance in understanding the Global South's colonial histories and uneven development within the global political economy (Cox, 1983; Finkeldey, 2022; Morton, 2007).

### 5.2.2 A neo-Gramscian analysis of supply-side climate policy and fossil fuels

The study of power relations in the energy transition has gained prominence, focusing on incumbents and elites from a political economy perspective (Ford & Newell, 2021; Geels, 2014; Sovacool & Brisbois, 2019). Fossil fuels have driven global capitalism's growth over the past two centuries, creating the fossil economy (Huber, 2009; Malm, 2016a).<sup>49</sup> This facilitated the swift industrialisation in the Global North and the expansion of capitalism through capital accumulation, colonisation and imperialism (Finkeldey, 2022; Huber, 2009; Malm, 2016b; Wright et al., 2022). The relationship between fossil fuel production, economic growth, and capital accumulation underscores the link between fossil fuels and capitalism, as well as the state's crucial role (Malm, 2016b; Newell & Paterson, 1998).

The widespread impact of fossil fuel expansion as a driver of global energy production and economic growth is often presented as indisputable, reflecting a form of common sense and hegemony enforced by state and capital (Newell & Paterson, 1998; Wright et al., 2022). It is crucial to focus on inequality and power imbalances that coercively shape energy access and control when analysing energy and climate politics (Huber, 2009; Malm, 2016b). Coercive features of fossil expansion include accumulation by dispossession (Finkeldey, 2022), "fossil-imperial metabolism" (Malm, 2016b),<sup>50</sup> State's response to contestations (Wright et al., 2022), resource wars driven by the social production of scarcity (Huber, 2011), or unequal distribution of and control over resources based on class, race, and gender (Finkeldey, 2022; Routledge et al., 2018). Coercion and consent are brought about by a *fossil fuel historical bloc*, consisting of policymakers, states and incumbent industry, materially grounded upon fossil fuel's centrality to economic expansion and ideologically upon the societal commitment to economic growth (Geels, 2014; Phelan et al., 2013). The bloc's hegemonic position is sustained by material, discursive and organisational practices to protect capital accumulation and bolster societal support for fossil-based economic growth, so that incumbents' interests, which shape governments' stances in climate negotiations, are portrayed as universal (Carroll, 2020; Evans & Phelan, 2016; Newell & Paterson, 1998). The fossil fuel industry and the state share discursively aligned but not completely

<sup>49</sup> According to Malm (2016a), it is an economic system characterised by self-sustaining growth built upon increasing fossil fuel consumption.

<sup>50</sup> Drawing on Marx's concept of social metabolism (the dynamic interaction between nature and society in commodity production and exchange), 'fossil-imperial' refers to fossil fuel exploitation as a means to maintain control over colonies, assert military dominance, and engage in (unequal) commodity exchange with peripheral regions (Malm, 2016b; Marx, 1992).

congruent interests, supporting this common sense (Kraushaar-Friesen & Busch, 2020). Resistance to mitigation, which threatens the bloc's core interests, is reinforced by framing governance structures, socio-technical systems, and markets around fossil interests, contributing to carbon lock-in and path dependency (Evans & Phelan, 2016; Newell & Paterson, 1998; Nyberg et al., 2018). Fossil-fuel hegemony is also maintained through scaling, articulating narratives across distinct spatial and temporal dimensions to accommodate divergent positions on climate change and delay mitigation (Nyberg et al., 2018; Wright et al., 2022).

Neo-Gramscian frameworks applied to energy studies illustrate contested issues and how configurations of material, institutional, and discursive power might be challenged and reformed (Bieler & Morton, 2004; Ford & Newell, 2021; Winkler, 2020).<sup>51</sup> In these terms, the energy transition can be seen as a war of position, with the fossil historical bloc mobilising its resources to maintain hegemony, while potential challengers contest its hegemonic legitimacy (Carroll, 2020; Ford & Newell, 2021; Geels, 2014). This paper contributes to the debate on supply-side mitigation policies and distributive justice issues in the North–South context, emphasising the need and potential for an inclusive and just energy transformation. Advancing a non-exhaustive neo-Gramscian analysis to the study of supply-side climate policy and fossil fuels in developing countries, the paper examines how developing countries frame climate challenges, comply with the UNFCCC, and on what grounds they have embarked on the development trajectories they took. Analysing discursive and coercive strategies, historical blocs, and coalitions provides insight into the evolution of structures within environmental issues, including mitigation, the energy transition, and fossil fuel supply (D. L. Levy & Newell, 2002).

### **5.3 Methods: Content analysis**

I conducted a qualitative content analysis (Bryman, 2016) to examine how developing countries address climate change and LFFU in their NDCs and National Communications (NCs). I focused on how these countries portrayed their development paths, looking at the variations in framing supply-side policies, mitigation efforts, and fossil fuel dependency. Content analysis helps extract meaningful conclusions from texts within their specific contexts (Krippendorff, 2004). When evaluating concepts, theories, and hypotheses in a new or different context, a deductive approach is useful (Elo & Kyngäs, 2008; Kyngäs & Kaakinen, 2020).

The Paris Agreement requires NDCs every five years (UNFCCC, 2015). This is in addition to the requirement under the UNFCCC to submit National Communications, considering the principle of CBDRRC and following the provided guidelines.<sup>52</sup> Non-

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<sup>51</sup> Examples include research on the European Union's energy politics (Haas, 2019) and gas industry (Szabo, 2022), corporate responses in climate negotiations (D. L. Levy & Egan, 2003), business engagement in international environmental governance (D. L. Levy & Newell, 2002), or negotiated consent in global climate politics (Ciplet, 2015).

<sup>52</sup> Art. 12 of UNFCCC sets the differentiated requirements according to Parties status.

Annex I Parties had to submit their first NC within three years of joining the Convention, or when financially feasible, and then every four years. Least Developed Countries (LDCs) have flexibility in submitting their NC1.

I identified 10 countries in the Global South with significant involvement in fossil fuel production, reserves, and infrastructure, based on the World Bank's definition of LMICs in 2021 (World Bank, 2022b),<sup>53</sup> cross-referenced with non-Annex I Parties to the UNFCCC. Quantitative data on resources were collected from Rystad UCube Database for Oil and Gas and BP (2022b) for coal and "carbon bombs" (extraction projects with potential CO<sub>2</sub> emissions exceeding the 1.5°C carbon budget) were used as a reference (see Table 7; Kühne et al., 2022).

**Table 7 – Documents submitted to the UNFCCC, income groups and fossil fuel involvement**

Country	Documents submitted to the UNFCCC		World Bank Income group	Fossil fuels				NOC	Carbon bombs
				Reserves		Production			
				Oil&Gas (Mboe, 2022)	Coal (Mt, end 2020)	Oil&Gas (tboe/d, 2022)	Coal (Mt, 2021)		
<b>Algeria</b>	2	1	Lower middle	11840.41	n/a	2661.28	n/a	Sonatrach	Yes
<b>Argentina</b>	3	4	Upper middle	4741.96	n/a	1340.29	n/a	YPF	Yes
<b>Brazil</b>	4	3	Upper middle	7692.01	6596	3355.02	8.2	Petrobras	Yes
<b>China</b>	3	2	Upper middle	20632.98	143197	7279.62	4126	CNOOC CNPC PetroChina	Yes
<b>Ghana</b>	4	2	Lower middle	530.83	n/a	193.59	n/a	GNPC	No
<b>India</b>	2	2	Lower middle	2471.84	111052	1104.30	811.3	ONGC	Yes
<b>Kenya</b>	2	2	Lower middle	n/a	n/a	Discoveries	n/a	NOCK	No
<b>Mozambique</b>	2	2	Low	930.75	n/a	76.10	n/a	ENH	Yes
<b>South Africa</b>	3	2	Upper middle	3.95	9893	7.40	234.5	PetroSA	Yes
<b>Uganda</b>	3	2	Low	0.16	n/a	Under development	n/a	UNOC	No
<b>Total</b>	<b>28</b>	<b>22</b>							

Source: Author, data from BP (2022b); Kühne et al. (2022); Natural Resource Governance Institute (2023); Rystad (2023); and World Bank (2022b).<sup>54</sup>

<sup>53</sup> Low income: GNI per capita ≤ USD 1085; lower middle: GNI per capita between USD 1086 and 4255; and upper middle: GNI per capita between USD 4256 and 13205.

<sup>54</sup> YPF (Yacimientos Petroliferos Fiscales); CNOOC (China National Offshore Oil Corporation), CNPC (China National Petroleum Corporation); GNPC (Ghana National Petroleum Corporation); ONGC (Oil and Natural

First, 50 documents were obtained from UNFCCC websites and imported into the software Atlas.ti.<sup>55</sup> Second, all materials were thoroughly read, with key quotes manually identified, and then coded using a codebook I developed inspired by Janzwood & Harrison (2023) and Mills-Novoa & Liverman (2019) (see Annex 11), refining the coding process to the analytical approach, focusing on mitigation and energy sections.<sup>56</sup> Lastly, a detailed analysis was conducted by labelling the identified codes into broader categories (i.e., fossil fuel, energy, etc.) to capture the conveyed meaning of statements in their context and frames used by governments regarding mitigation and fossil fuel supply (Jernäs & Linnér, 2019).

The assessed documents and methods have strengths and limitations. The study examines how certain countries' carbon entanglement evolved from the Convention's entry into force to the "post-equity phase" under the Paris Agreement (Gupta, Gupta, et al., 2022). Frequent reporting through UNFCCC submissions enhances understanding of climate ambitions within the regime. These documents undergo technical review and contain information for the Conference of the Parties (COP) and national policymakers, offering standardised, systematic, nationally based, and digitally accessible data (Biesbroek et al., 2022). The UNFCCC outlines normative provisions on how Parties should contribute to the Convention. The Parties' submissions reflect diverse interpretations attributed to these norms, shaped by the domestic context (Höhne et al., 2023). These documents serve both international and domestic audiences, underscoring the State's nodal role (Morton, 2007) between the domestic articulation of the international regime and global capitalist accumulation. Studying these documents and countries' engagement may clarify how supply-side mitigation policy can be integrated into the regime.

However, standardised reporting has limitations due to varying document lengths and details across time and countries, making comparison challenging (Höhne et al., 2023; Janzwood & Harrison, 2023). Communications availability varies, especially for non-Annex I countries, the number of submissions widely differs, mitigation actions are scattered among sections in the documents, and submission delays are common (Biesbroek et al., 2022). Guidelines have been criticised for lacking detail, leading to inconsistent reporting (Biesbroek et al., 2022). In the context of fossil fuel supply, issues of ownership and interdependencies within the historical bloc are not apparent. To address some of the limitations and to highlight overlooked ownership structures (Herzog-Hawelka & Gupta, 2023), I used data from Rystad (2023) to support document inferences. I considered the top 5 oil and gas producing projects (or discoveries/under development) for each country, along with their ownership structures and remaining

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Gas Corporation); NOCK (National Oil Corporation of Kenya); ENH (Empresa Nacional de Hidrocarbonetos); PetroSA (Petroleum Oil and Gas Corporation of South Africa); UNOC (Uganda National Oil Company).

<sup>55</sup> Available at <https://unfccc.int/NDCREG> and <https://unfccc.int/reports>. Algeria's documents were in French, Argentina's in Spanish. For the Chinese documents the available (unofficial) translation was used.

<sup>56</sup> The UNFCCC defines "energy sector" as covering energy supply (electricity, non-power, i.e., refining, coal mining), transportation, and selected industries (mining, paper, buildings).

resources. I also gathered data on NOCs, classified by country of operation, from 2010 to 2030 (see Annex 12).<sup>57</sup>

While these documents offer only a partial view of states' intentions, analysing them remains valuable, because the implications of the states' goals as limitedly outlined in these texts are considerable. They outline national development circumstances, priorities and paths, according to which countries will address climate change (Höhne et al., 2023). In addition to offering useful insights on fossil fuel supply and mitigation, NCs and NDCs can also serve as governing tools, setting the tone for COP discussions (Jernäs, 2023). A neo-Gramscian framework can reveal how discourse framing on mitigation and fossil fuel supply, through consent and coercion, favours certain narratives while obscuring others. Future research should include other developing countries and triangulate with other data sources for finer assessments of specific fossil fuel projects (i.e., carbon bombs) and ownership structures.

## 5.4 Results: Towards fossil expansion and lock-in

### 5.4.1 NCs and NDCs through time

Table 8 outlines a timeline from 1992 to 2023, showing key outcomes of the climate regime and the evolution of the leadership paradigm in climate negotiations (Gupta, 2010).<sup>58</sup> The timeframe and amount of submitted documents vary greatly by country. From 1999 to 2022, Argentina and Brazil submitted seven documents each, most countries submitted four or five, while Algeria only three. Algeria and India have not submitted any NC since 2010 and 2012, respectively. No communication was submitted during the global financial crisis (2008–2009). In 2015, countries developed their intended NDCs (INDCs), which became the first NDCs when the Paris Agreement came into effect. The new and more flexible regime led to the profusion of documents, which represent most of the documents analysed (32).

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<sup>57</sup> Data was not available for Kenya.

<sup>58</sup> *Leadership articulation* (1992–1996): conceptualised around UNFCCC differentiation between Annex I and non-Annex I. Annex I Parties were expected to lead by reducing emissions, financially and technologically supporting developing nations while creating space for their growth. *Conditional leadership* (1997–2001): lack of leadership by developed countries, particularly the US, and the links between climate change and development gained prominence. *Leadership competition* (2002–2007): low incentives for developed countries to reduce emissions and pressure on emerging economies. *Leadership during recession* (2008–2009): disarticulation of leadership discourse after 2008, the post-Copenhagen period, and engagement of emerging countries. *Whose leadership?* (post-2010): debate on leadership quality emerged, as developed countries demonstrated inadequate statesmanship (e.g., COP15, Doha Amendment, US Paris Agreement withdrawal), while developing nations hesitated in emission reduction efforts (Gupta, 2016). The Paris Agreement shifted climate governance towards a bottom-up, nationally determined approach, side-lining equity-related debates including leadership and responsibility (Gupta, Gupta, et al., 2022; Gupta, Vegelin, et al., 2022).

**Table 8 – Timeline of the climate change regime and submitted documents**

1992-1996	1997-2001	2002-2007	2008-2009	2010-2015	2016-2020	Post-2020
UNFCCC (1992) UNFCCC into force (1994)	Kyoto Protocol adoption (1997) US withdraws from Kyoto	Kyoto into force (2005)	Global financial crisis (2008-2009) COP15 – Copenhagen Accord (2009)	COP18 – Doha Amendment COP20 – INDCs by 2015 COP21 – Paris Agreement (2015)	Paris Agreement into force (2016) Talanoa Dialogue (2017) US withdrawal from Paris Agreement (2020)	US re-joins Paris Agreement (2021) Enhanced NDCs COP26 – Glasgow Climate Pact COP27– Loss and Damage Fund GST (2023)
Leadership articulation	Conditional leadership	Leadership competition	Leadership during recession	Whose leadership?		
No communications by included countries	ARG NC1 (1999rev) ZAF NC1 (2000) GHA NC1 (2001) DZA NC1 (2001)	KEN NC1 (2002) UGA NC1 (2002) BRA NC1 (2004) IND NC1 (2004) CHN NC1 (2004) MOZ NC1 (2006) ARG NC2 (2007)	No communications by included countries	BRA NC2 (2010) DZA NC2 (2010) GHA NC2 (2011) ZAF NC2 (2011) IND NC2 (2012) CHN NC2 (2012) UGA NC2 (2014) CHN NDC1 (2015) GHA NC3 (2015) GHA NDC1 (2015) KEN NC2 (2015) KEN NDC1 (2015) UGA NDC1 (2015) ARG NC3 (2015) ARG NDC1 (2015) DZA NDC1 (2015)	BRA NC3 (2016) BRA NDC1 (2016) IND NDC1 (2016) ZAF NDC1 (2016) ARG NDC1rev (2016) CHN NC3 (2018) UGA NC2 (2018) MOZ NDC1 (2018) ZAF NC3 (2018) BRA NC4 (2018) BRA (2020) BRA NDC1rev (2020) NDC1rev (2020) MOZ NC2 (2020) GHA NC4 (2020) KEN NDC1rev (2020) ARG NDC2 (2020)	CHN NDC1rev (2021) GHA NDC1rev (2021) MOZ NDC1rev (2021) ZAF NDC1rev (2021) NDC1rev (2021) CHN NC3 (2021) ARG NDC2rev (2021) BRA NDC1rev2 (2022) IND NC1rev (2022) MOZ NC2 (2022) UGA NC3 (2022) UGA NDC1rev (2022) NDC1rev (2022)
<b>Total</b>	<b>4</b>	<b>7</b>		<b>16</b>	<b>13</b>	<b>10</b>

Source: Author. Leadership timeline until 2008-2009 from Gupta (2010). The ISO3166-1 standard was used for country names.

## 5.4.2 Country analysis

### 5.4.2.1 *Established gas lock-ins: Algeria and Argentina*

Algeria heavily relies on the full exploitation of its vast oil and gas reserves to drive industrialisation (NC1). While recognising the significance of fossil fuel exports for national development, the country acknowledges vulnerability to price volatility (NDC1). Infrastructure investment, including pipelines, specialised ports, and liquefied gas terminals, has led to a steady increase in output. The energy sector, the largest emitter, mostly focuses on gas consolidation, reserving oil products for exports. Fossil fuels dominate the energy mix, particularly in power generation through combined-cycle plants (NC1, NC2). Reliability and security concerns drive the rise of fossil-based energy generation. Algeria's documents emphasise the role of gas as a bridge fuel and a key element for mitigation, rooting this narrative on RtD considerations, equity, and no historical responsibility to the issue. Gas expansion is framed as a response to people's legitimate expectations of economic and social development (NDC1). Sonatrach mirrors the government's plans and fully owns most of the top-producing projects (two are carbon bombs), collaborating with Global North companies. As Sonatrach primarily focuses on indigenous production, these interdependencies underscore a nationally focused fossil expansion within the historical bloc.

Argentina's economy is service-oriented but exports commodities and agricultural-based industrial goods. The energy sector, the largest emitter, strongly rests on oil and gas, accounting for about 90% of primary energy supply (NC2). Gas-fired combined-cycle plants generate most of the electricity and gas is exported to neighbouring countries. To safeguard fossil supply, Argentina has promoted investments in exploration, production, and infrastructure (NC2), resulting in significant discoveries (including one carbon bomb) that will increase future reserves (NC3). Energy transition plans prioritise efficiency in gas-based power production rather than addressing fossil supply, emphasising energy security and RtD arguments (NC2). Plans frame climate change as an opportunity for structural change (NDC2), prioritising socioeconomic development and just transition narratives for an "inclusive, dynamic, stable, federal and sovereign" energy mix in 2030 (NC2, NDC2, p. 20). Recent discoveries have brought a complex web of ownership structures, which involve YPF (Yacimientos Petrolíferos Fiscales, Argentina's oil company), local companies and foreign actors from France, China, and the US, among many others. YPF operates in Argentina, but the exploitation of national resources rests on broader ties with foreign capital, forming a domestic and transnational historical bloc that gains consent around fossil expansion as key for development and deploys coercive measures in extraction areas (Observatorio Petrolero Sur, 2016).

### 5.4.2.2 *Incipient lock-ins: Ghana and Kenya*

Ghana's transition to a service-based economy has resulted in a carbon entrenchment predominantly triggered by the energy sector, turning Ghana from a net sink to an emitter. Ghana explicitly recognises its carbon lock-in and the associated rise in emissions (NC4,

p. 25). The economy heavily relies on natural resource exports, including oil, which has been a significant component of trade and government revenue since 2010. Despite exporting almost all crude oil, Ghana imports petroleum products (NC3-NC4). Biomass remains the primary domestic energy source, yet fossil fuels dominate final energy supply, with thermal power generation gradually displacing hydropower. Ghana aims to become a net exporter of oil and thermal power exporter by focusing on replacing fuels in thermal plants with gas, updating existing plants, and promoting gas use in urban poor households. The West Africa Gas Pipeline project and offshore exploration further contribute to expanding the industry. The energy sector is the largest recipient of climate financial flows, with significant investments in gas (NC4). The plans are rooted in building an “energy economy” with energy security as a key factor (NC3, NDC1). The RtD pervades the energy strategy, pursuing a development agenda built around fossil fuels to realise citizens’ aspirations (NDC1). Looking at extraction projects, foreign companies play a significant role in this vision: GNPC produces only in Ghana and owns minority shares (around 20%) in the top-producing projects, mainly operated and owned by Global North oil companies.

Kenya’s economy relies primarily on agricultural commodity exports, leaving it vulnerable to climate-sensitive sectors. The country is actively exploring fossil fuels, including coal, and recent hydrocarbon discoveries are expected to reduce petroleum imports (NC2), making fossil fuels “important resources for Kenya going forward” (NC2, p. 33). Despite a relatively clean energy mix (hydropower and geothermal), fossil fuel use is growing in electricity, heating, and transportation (NDC1rev). Fossil fuel growth is embedded in development plans, with intensified domestic exploration, fossil-based power plants (including coal) and pipeline extension (NDC1rev), to diversify energy sources (NC2). The petroleum industry is being modernised to improve safety, reduce pollution, and enhance power generation efficiency (NDC1). Kenya briefly mentions international support (i.e., compensation) for foregoing fossil exploitation, grounded on RtD considerations (NDC1rev, p. 4). This prospective producer status, driven by recent discoveries expected to start by the mid-2030s, is underpinned by ownership structures completely in the hands of foreign oil companies.

#### ***5.4.2.3 Prospective least-developed producers: Mozambique and Uganda***

Mozambique heavily relies on agriculture, with land use and change as its primary emission source. Most of domestic energy is derived from biomass, with hydropower (90%) and gas (10%) used to generate electricity, which exceeds demand (NC2). Fossil resources are viewed as the foundation for competitive advantages (NDC1). Significant coal and gas reserves have been discovered, resulting in planned projects and a predicted expansion of the extractive industry (NC2). Coal and gas output is expected to rise, notably in thermal energy generation, to enhance efficiency and sustainable resource use (NDC1). Gas is seen as an opportunity to diversify the energy mix and foster industrial and socioeconomic growth (NC2). Mitigation measures should prioritise social

development and only be implemented when they are the best option for development (NC2, NDC1). This perspective around a fossil-based RtD is materially sustained by the ownership structures of major gas-producing projects and enormous discoveries (which are carbon bombs). ENH (Mozambique's oil company) operates domestically and holds minority stakes in these assets, while a broad network of foreign companies from the Global North (i.e., Italy, France, US) and South (i.e., China, India, and South Africa) fosters Mozambique's role in global gas production, most likely to meet foreign demand for liquefied gas.

Uganda's economy is founded on agriculture, and natural resource and climate change management are critical for sustainable industrialisation (NC3, p. 3). Transportation is Uganda's major emitter, experiencing a carbon-transport lock-in. The country imports all petroleum products and allocates significant portion of its budget to energy and road infrastructure (NC3). Biomass is the most important energy source, followed by oil and hydropower. Most electricity comes from hydropower, with diesel thermal plants used during water shortages (NC3). Uganda has invested considerably in oil exploration, discovering reserves that are expected to play a key role in its development (NC2). Reducing petroleum imports is the main reason for fossil extraction, prioritising the construction of a refinery above exporting crude oil (NC2). The government aspires to achieve "sustainable exploitation" of fossil resources, enhance power generation efficiency and strengthen the institutional framework for environmental protection (NC3, p. 23). Uganda's approach to the transition is pro-market, with the state acting as a facilitator and regulator, while the private sector drives growth (NC2). Arguments in favour of fossil fuel expansion emphasise the potential for economic transformation and poverty reduction (NC3). Major oil projects currently under development, expected to start by the end of the decade, feature minority government shares, complemented by the predominant role of foreign companies from France and China.

#### ***5.4.2.4 Established coal lock-ins: India and South Africa***

India is rapidly industrialising, although agriculture remains the economy's foundation, particularly for employment. Coal is the energy system's core, with strong linkages to associated sectors, and it will continue to dominate in the future (NC2, NDC1). Due to its abundance and affordability, coal has a competitive advantage over imported fuels, and generation capacity is expanding to meet increasing demand. However, coal imports are rising, and India does not anticipate being self-sufficient in hydrocarbons (NC1, NC2). Climate change has a significant impact on energy infrastructure: India is prioritising sustainable infrastructure development plans, in which decisions are made with a long-term perspective to mitigate impacts and avoid "critical lock-ins" (NC2, p. 165). Due to coal dependency, the focus is on optimising the exploitation of available resources (NC2), improving efficiency, and adopting clean coal technologies (CCT) in power generation (NC2). Nonetheless, India introduced a tax on coal to fund clean energy projects, cut subsidies, and raised taxes on petroleum products (NC2, NDC1, p. 27).

Efforts are undertaken to accelerate oil and gas exploration and production (NC2), with associated infrastructure investments. ONGC, primarily operating in India (with significant production in Russia), fully owns some of the biggest projects, but other assets are operated and owned by domestic and foreign private companies. Indian documents emphasise justice and equity, supporting a development-first approach rooted in RtD and historical responsibility (NDC1). However, they also suggest leadership in the reconciliation between growth and the environment, seeking an alternative development path (NDC1).

South Africa, a middle-income developing economy with abundant and cheap coal supply, is currently shifting towards the tertiary sector. As a significant industrial and economic power in Africa (NC2), it is entrenched in coal lock-in, being “the most coal-dependent country in the world” (NDC1rev p. 4), in terms of energy supply, electricity generation, production and exports, and thus vulnerable to response measures of developed countries (NC1). Coal represents 2/3 of primary energy sources and is expected to dominate power generation until 2040 (NC1, p. ix). Because it will continue to drive “economic and social progress” in the foreseeable future (NC3, p. 55), the task is to make its production and use more sustainable. Due to the ageing and inefficient fleet (NC3), the priority is efficiency-enhancing of coal-fired power plants, and mined coal is expected to increase. Energy transition plans emphasise energy supply diversification, towards the “complete transformation of the future energy mix” (NDC1, p. 2). Given the small share of responsibility, South Africa explicitly calls “injustice” to be disproportionately negatively affected by climate change (NDC1, p. 25). The documents often present RtD arguments around mitigation and development, recognising the energy system as the focus of this tension (NC2-NDC1). PetroSA fully owns the two most gas-producing projects, which are relatively small compared to other countries, and operates also in Ghana. However, it is not involved in two important gas discoveries, owned by private South African and foreign companies. Simultaneously, the country is aware of its pivotal role in Africa, particularly in terms of inclusive and just transition (NDC1).

#### **5.4.2.5 Potential leaders? Brazil and China**

Brazil’s economy is predominantly urban, industrial, and service-based, with agriculture vital for exports. Land use and change account for most of emissions (NC2). The energy mix is relatively clean, with a RES share of 46% in 2019, substantially higher than the OECD and global average (NC4). Because Brazil is one of the largest hydropower producers, RES account for 80–90% of electricity generation (NC1-NC4), making the country a low-carbon economy (NDC1, p. 3). Nonetheless, the remaining energy supply comes from domestically abundant fossil fuels. Brazil’s oil supply is almost entirely domestic, new oil and gas reserves have been found, with the potential to become an oil products net exporter in the midterm (NC1, NC2). Furthermore, rising interest in gas for power generation has resulted in increased production and pipeline expansion: rooted in energy security reasons, gas is considered a strategic component for mix diversification

and decentralisation of electrical systems (NC3), central for defining a model of sustainable development (NC1). Petrobras owns most shares in the top five productive projects (3 carbon bombs), operating mainly in Brazil but also in Argentina and Bolivia, and with foreign companies from China and Europe. Despite its fossil plans, Brazil highlights its ambition within the Convention, stated as exceeding the level expected from a country with relatively small historical responsibility (NDCrev2). Being Brazil prepared to take a “leading role” (NC2, p. 6), mitigation efforts place it among the leaders within the Convention (NDCrev2).

China is currently undergoing a “critical period of transforming its growth model, optimising economic structure, and shifting growth drivers” (NDC1rev, p. 2). Coal is the backbone of Chinese growth (NDC1). The documents acknowledge the coal lock-in, which makes substantial changes in the energy system difficult in the short term (NC2, NDC1rev). The energy sector is the largest emitter: coal dominates primary energy production, followed by petroleum, gas, and nuclear, while electricity generation is mostly dependent on coal-fired thermal power. Like India and South Africa, the focus is improving coal power generation efficiency (NC3) and demand management, including a “structural reform” of coal supply (NDC1rev, p.11), reduction in coal consumption, decommissioning outdated capacity and not building new coal-fired plants abroad. Additionally, China is supporting gas exploitation, with intensified exploration efforts resulting in major discoveries (NC2), increased production, pipeline expansions and unconventional fossil development (NC2, NC3). This picture is further underpinned when looking at the five top-producing projects (all carbon bombs) and the production by the three main Chinese NOCs (CNOOC, CNPC and PetroChina, the listed part of CNPC). Four projects are operated and mostly owned by PetroChina, which overwhelmingly produces domestically alongside CNOOC. All three companies produce also in the Global North (i.e., Australia, Canada, UK) and South (Brazil, Central Asia, and Africa). Conversely, China aims at “leapfrog development” of key economic sectors, including RES (NC2, p. 105), highlighting the development of non-fossil energy (NC3) through green finance and subsidies (NDC1rev). Non-fossil energy power generation capacity rose to a third (NC3) and installed capacity is exceeding fossil-based incremental additions (NDC1rev). Given this RES deployment, China is eager to increase support to other developing countries (NDC1rev).

## **5.5 Discussion: the global energy transition between passive revolution and transformation**

### **5.5.1 Emerging features**

The outlined development trajectories (see Table 9) reveal a dominant trend marked by fossil expansion, energy addition (i.e., adding RES without displacing fossil fuel; York & Bell, 2019), and carbon lock-in. Despite emphasising their vulnerability to climate change for which they are not responsible, many LMICs have engaged in fossil fuel

growth since their first submissions to the UNFCCC. While the Paris Agreement does not mention fossil fuels, countries openly discuss their fossil fuel plans in their documents.

**Table 9 – Summary table**

<b>Countries</b>	<b>Fossil supply and energy sector</b>	<b>RES</b>	<b>Arguments</b>
<b>Established gas lock-ins</b>			
<b>Algeria</b>	Fossil fuel exporter Energy mix fossil-dominated Fossil expansion	Potential for solar, but negligible role in plans	Energy security Reliability of gas RtD justifying fossil expansion
<b>Argentina</b>	Gas exporter Energy mix fossil-dominated Fossil expansion	Wind for local industrial development New nuclear Hydrogen supply chain by 2030	Efficiency Gas as key part of future energy mix Energy security, just transition, RtD
<b>Incipient lock-ins</b>			
<b>Ghana</b>	Aspiration to become net exporter Energy mix fossil-dominated, displacing hydropower for thermal plants Fossil expansion	Negligible role in plans (10% in energy mix by 2030) Plans for nuclear	Gas as transition fuel Acknowledgement of carbon lock-in Energy security and RtD to expand production
<b>Kenya</b>	Relatively clean energy mix, but fossil fuel growing for electricity, heating and transportation Recent discoveries of oil and gas	Important role of geothermal RES provide energy security and reduced costs	Fossil fuels important for the future, to reduce petroleum product import reliance Diversification of energy sources, towards coal and gas and RtD Mention of compensation to LFFU (NDC Irev, p.4)
<b>Prospective least developed producers</b>			
<b>Mozambique</b>	Clean electricity generation mix, but oversupply Significant coal and gas reserves Predicted growth of extractive industry	Recognised potential for solar and hydropower, mainly for rural development	Fossil fuels as foundation for competitive advantages Gas as transition fuel for diversification of energy mix and growth Fossil-based RtD

**(continued on next page)**

Table 9 (continued)

Countries	Fossil supply and energy sector	RES	Arguments
<b>Uganda</b>	Import dependency on petroleum products for transportation Relatively clean energy mix Electricity generation from hydropower complemented by diesel thermal plants Major expenditures in fossil expansion	Focus on biomass, hydropower and solar Plan to quadruple RES power generation capacity by 2030 (compared to 2013)	Fossil fuel “sustainable” exploitation to reduce petroleum product import reliance State as facilitator for private-driven development Fossil-based RtD
<b>Coal lock-ins</b>			
<b>India</b>	Coal lock-in Coal-dominated energy system Fossil expansion in oil and gas	Tax on coal (produced and imported) to fund clean energy projects and fossil fuel subsidies removal Ambitious programme for wind and solar Increased RES installed capacity	Importance of infrastructure planning to avoid lock-ins Focus on optimising exploitation of available resources and efficiency RtD in fossil expansion Justice
<b>South Africa</b>	Coal lock-in Coal-dominated energy system Mined coal expected to increase	RES underdeveloped and underutilised Levy on fossil-based electricity generation REI4P Focus more on nuclear than RES in mitigation scenarios	Coal to drive development Priority to coal efficiency RtD around energy system Inclusive and just transition
<b>Potential leaders?</b>			
<b>Brazil</b>	Clean energy mix, above OECD and global average All oil domestically produced Fossil expansion	Plans to increase already high share of RES	Gas as strategic for mix diversification and decentralisation Gas as decisive for sustainable development Energy security and RtD
<b>China</b>	Coal lock-in Coal-dominated energy system Gas expansion	Massive RES deployment	Focus on efficiency improvements Gas as transition fuel RtD “Leapfrog development” of RES

Source: Author.

Carbon lock-in varies across countries, with some already locked in (i.e., Algeria, Argentina, India), others in the process (i.e., Ghana, Mozambique), and different types of lock-ins emerging (i.e., Uganda with transportation, Kenya with imports dependency). Considering these divergencies, fossil expansion is often justified on energy security grounds, export dependencies, or equity and responsibility. The pervasiveness of certain narratives (i.e., the RtD, gas as a transition fuel) has led even countries with relatively

cleaner energy systems to shift their interest and plans towards fossil fuel, increasing associated investments, and further entrenching themselves in fossil-based structures. However, some countries may have the potential to fundamentally change their energy systems (i.e., Brazil, China).

The interdependency between states and fossil capital is evident in major extraction projects and activities of NOCs. Ownership structures of these projects are diverse, ranging from mostly domestic (Algeria, Brazil), to foreign-led with minority shares held by countries' NOCs (Mozambique and Uganda), and more complex and mixed ownership structures involving NOC, domestic private firms, and foreign private and national companies (Argentina, South Africa). These variations also shape the state-capital relationships *within* the Global South. Indeed, the different ownership structures and operations of Global South's NOCs influence the possibilities of addressing fossil supply. For instance, while Sonatrach prioritises indigenous production, Chinese NOCs, operating and owning projects in many developing countries, are better placed to advance the historical bloc's imperative for extraction and capital accumulation. Despite these differences, governments in the Global South, with their NOCs, represent the nodal point in articulating the historical bloc's scalar practices towards fossil supply (Morton, 2007; Nyberg et al., 2018). The following further discusses the narratives and frames used in the documents, emphasising the resistance, accommodation, counter-hegemony, and silences.

### **5.5.2 Resistance: The RtD and passive revolution**

The documents show that the Global South consists of old and newer fossil incumbencies. Emerging economies have long been locked in with coal (China, India, South Africa), others have been entrenched in oil and gas (Algeria, Argentina), while the poorest and most vulnerable countries are attracted by the promises of a fossil-based development, whether with oil (Ghana, Uganda, Kenya) or gas (Mozambique).

Domestic material factors (i.e., resource abundance, trade dependencies, poverty) influence how governments frame the issues and translate regime norms (Höhne et al., 2023). These factors are discursively shaped by the historical bloc through narratives that form the consensual component of its hegemony, articulated in temporal understandings around fossil fuels' importance in the past, present and future (Wright et al., 2022). Likewise, these narratives are soaked in coercion, advanced by states and fossil capital (i.e., in Argentina or Mozambique; Schücking et al., 2022). The historical bloc maintains control of energy systems by aligning material, organisational, and discursive configurations around fossil fuels (Ford & Newell, 2021). Consequently, the global energy transition might appear as a passive revolution with the RtD serving as a discursive tool to sustain and reproduce fossil fuel hegemony. The transformation needed to address development, fossil supply and climate change is twisted towards a "progressive restoration" (Bieler et al., 2015), wherein the RtD retains the core (fossil

fuel) but agrees to the legitimate demands for development. In various ways, all included countries call on developed countries to fulfil their commitments under the Convention and claim their RtD. Even though the RtD is based on equity and responsibility principles, incumbents employ narratives to influence others' perceptions of a resource and its role, gaining consent from subaltern groups. Many Global South's civil societies (in Gramsci's sense) are attracted by the promises of fossil fuels, and claim the right to exploit these resources, regardless of the risks of stranded assets or (already occurring) lock-ins. As framed by the historical bloc, the RtD is incompatible with climate mitigation, and based on it, the fossil expansion in the Global South is underway (Gupta & Chu, 2018).

### **5.5.3 *Trasformismo*: The power of gas**

The bridge narrative of gas exemplifies *trasformismo*. Indeed, the positive framing of gas as a vital transition fuel has strengthened the bloc's power and policy capacity (Szabo, 2022). This deliberate strategy evolved in two distinct but overlapping phases (Szabo, 2022). First, the dominant narrative, particularly in earlier publications, was circumscribed within fossil fuels: gas is depicted as the best replacement for coal in power generation, reducing associated emissions. One supporter of this 'clean' narrative is Algeria, where gas is portrayed as critical to attaining development and mitigation goals, including exporting gas to other countries to support their mitigation efforts (NDC1). Later, the narrative is framed between fossil fuels and renewables: gas is portrayed as the ideal partner for RES, which represent a potential challenger to the historical bloc. Here, resistance and accommodation blend (Ford & Newell, 2021): RES are considered threats to energy security, affordability, and international competitiveness, *yet* they may also be successfully complemented by gas, which offers versatility and reliability in ensuring baseload energy supply (Brazil, NC3).

The disruptive potential of RES is then co-opted and neutralised within the fossil-dominant basis of energy systems, and phenomena such as energy addition emerge. The fact that several countries (China, Ghana, India, Mozambique), including one of the largest hydropower producers (Brazil), refer to gas as a viable alternative or as a key component of their energy transition plans (Argentina), illustrates its pervasiveness. The bloc is accommodating pressures by emphasising technologies such as CCT, pipelines as cleaner forms of transport (India, Kenya), and gas reliability, enshrining an energy addition feature in energy politics.

### **5.5.4 Counter-hegemony? Leapfrogging and Southern leadership**

Despite the historical bloc's mobilisation, RES deployment and high participation in the energy mix (i.e., China, Brazil, Kenya), leadership in South-South cooperation, and discourses around inclusive and just transition might be seen as an incipient building of counter-hegemony. The documents suggest a desire for Southern leadership as well as possible transformative discourses around which to gain allies and engage in a position war in the global energy transition.

First, leapfrogging may be feasible in the Global South. China’s massive RES deployment (IEA, 2023) revolves around the aspiration to “lead the energy revolution” (NDC1rev p. 34), motivated by a “sense of responsibility” (NDC1, p. 2). According to China, carbon neutrality will be achieved quicker than in the Global North (NDC1rev). However, it is uncertain how much counter-hegemonic influence the “ecological civilisation” narrative (NDC1rev) can wield. Second, the concept of inclusive and just transition advanced by South Africa and India, also mentioned by Kenya and Argentina, could bear counter-hegemonic potential (Evans & Phelan, 2016). While South Africa portrays its commitments as consistent with just transition, emphasising the need for emerging economies to take substantial action (NC2),<sup>59</sup> India’s NDC1 is titled “Working towards climate justice” and conveys the view that the trade-off between development and environment could be removed (NDC1). Both position themselves at the vanguard of promoting a more equitable international order and pursuing an equitable, inclusive, and sustainable development path. Finally, based on energy considerations, Brazil may take a ‘decarbonised’ lead in the global energy transition. The existing high percentage of RES in an emerging country’s energy mix is an effective push towards greater decarbonisation and electrification of energy supply. Brazil, already a leader of the South within the UNFCCC (NDC1rev2), might provide scope for a disruptive leapfrogging narrative that might severely challenge the historical bloc, materially proving that a RES-based energy system is achievable.

### 5.5.5 The silences

Some topics are significantly and comparatively scarce in the documents: policies and instruments targeting fossil supply (Rempel & Gupta, 2022), the risks of stranded assets, and debt.

Supply-side measures mentioned by countries concern coal (i.e., India, China), neglecting other fossil fuels, unless for domestic consumption reduction to promote exports (Alegria). The overemphasis on coal raises equity concerns about the socio-political feasibility of coal supply decline for dependent developing countries, when deeper cuts should be underway in oil and gas production, notably in the Global North (Muttitt et al., 2023). Similarly, the issue of stranded assets and resources does not emerge significantly. Kenya is the sole country that is explicitly open to foregoing the exploitation of its resources, provided compensation is made available (NDC1rev, p. 4). The risk of stranded infrastructure due to LFFU is underestimated, while more attention is paid to the physical impacts of climate change. India recognises the risks of “huge monetary losses” in the medium-long term (NC1, p. xi) and stresses the importance of “conscious analysis of climate change-related impacts” in planning to avoid lock-ins (NC1, p. 125). Nonetheless, the bridge narrative of gas is driving up investment in infrastructure and

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<sup>59</sup> The Just Energy Transition Partnership (JETP) between South Africa and France, Germany, the UK, the USA, and the European Union is another move in this direction, aiming at helping South Africa meet its decarbonisation targets (NDC1rev; European Commission, 2021).

power plant expansion, exposing countries to stranding risk and lock-in (Kemfert et al., 2022). Finally, some countries (Mozambique, Argentina, Uganda, and South Africa) highlight the significant challenge of debt. This stems from the current model of climate finance, reliant on additional debt rather than grants, coupled with structural barriers faced by the Global South (i.e., cost of borrowing, weak currencies). Argentina and Ghana have defaulted on their loans, while Kenya and Uganda have requested IMF bailouts. China is the largest bilateral creditor to LDCs, with Argentina, Ghana, and Kenya among its top borrowers, while debt payment exceeds the annual cost of fulfilling NDCs in Ghana and Mozambique (Goswami & Rao, 2023).

## 5.6 Conclusion

LMICs have embarked on development paths characterised by energy addition, fossil fuel expansion, and lock-in, and these trends emerge in their submissions to the UNFCCC. Yet, LMICs have various positions on fossil supply, ranging from organic alignment with production and hegemonic discourses around fossil-based economic development (i.e., Algeria) to stances expressing more agency and opportunity for Southern leadership (i.e., China and Brazil), challenging the bloc with potentially counter-hegemonic narratives. Given the complex nature of these documents, trade-offs in development trajectories, and the global economy, this spectrum is nuanced, offering only glimpses of potential fissures in the historical bloc.

In this context, some bottlenecks can be highlighted. First, the analysis stresses the insufficient emphasis by LMICs on addressing fossil supply in decarbonising their energy systems. This could be in part due to the reporting system used by the UNFCCC, but also to the intricate ownership structures analysed. The organic alignment regards fossil-based economic growth as the best chance for future mitigation and adaptation (Stepanov et al., 2021) and addressing the development challenges these countries must face, exacerbated by the path-dependency of carbon lock-ins (Seto et al., 2016). Second, climate governance has historically operated based on emissions, while there is a need to develop fossil-based frameworks to assess accountability, particularly for production and infrastructure (Green & Kuch, 2022). The analysis confirms how these documents have been used as governing instruments to highlight political North–South struggles in climate governance (Jernnäs, 2023), but also suggests that the RtD, as an instrument of the historical bloc, may be an inscrutable obstacle to addressing fossil supply and its risks. Lastly, all included countries highlight the Global North’s responsibility to provide support, yet its response has disappointed. The global financial architecture entails structural barriers to climate action in the Global South (Goswami & Rao, 2023). Nonetheless, when it comes to financial obstacles, debt and asset stranding are underestimated in the documents. External debt limits fiscal space to handle fossil supply, a task that may be exacerbated if related assets become stranded.

Nevertheless, some opportunities arise. Several countries highlighted their aim to achieve higher-income status through structural change. The fast deployment of RES may provide the opportunity to leapfrog fossil-based energy systems, grounding development trajectories and industrialisation plans on RES. The role of the state in this process goes beyond being a facilitator for markets (Horner, 2017): its nodal role as a space for contestation and counter-hegemony building could prove crucial for rapid transitions and leapfrogging (Newell & Simms, 2021; Routledge et al., 2018). This is relevant considering the comparatively higher state capacity of some countries: if the laggards in international climate governance may have to turn into leaders (Gupta, 2010), certain materially based narratives may have counter-hegemonic potential. Furthermore, the concerns of developing fossil fuel-dependent countries (Lujala et al., 2022) may be overcome with institutional innovations in international climate governance: for example, a fossil fuel non-proliferation treaty (Newell, van Asselt, et al., 2022; Newell & Simms, 2020; van Asselt & Newell, 2022) or informal clubs targeting supply such as the Powering Past Coal Alliance (PPCA) and the Beyond Oil and Gas Alliance (BOGA), which include either wealthier countries or non-producing countries (Blondeel et al., 2020; Janzwood & Harrison, 2023). To increase meaningful membership and achievements in these processes (Trout et al., 2022) other instruments may be needed, such as debt-for-climate swaps (Chamon et al., 2022; Essers et al., 2021), tying debt relief to participation in LFFU coalitions (Lujala et al., 2022), or de-risking decarbonisation through guarantees based on future wealth (Gard-Murray, 2022).

In conclusion, a neo-Gramscian perspective emphasises three key points. First, the formation of a fossil historical bloc that aligns interests for stable regimes and capital accumulation. The analysis highlights the structural power and interdependencies between states and capital that shape the international climate regime. The State's organic tie with fossil-based growth and energy production affects its capacity to address fossil supply (Newell & Paterson, 1998). Second, fossil fuel hegemony relies on discursive strategies to gain legitimacy, consent and compliance (LeQuesne, 2019) and on coercive practices embedded in energy politics and the state's relationship with fossil capital. Third, there is potential to identify (narrow) opportunities for transformation: RES within an equitable and just transition focused on LFFU could represent a site for global counter-hegemony (Phelan et al., 2013). Transformative narratives, rooted in the material conditions of the Global South, may serve as elements to build a new common sense, address fossil fuel supply, and fundamentally redirect development trajectories (Carroll, 2020; Phelan et al., 2013; Winkler, 2020; Wright et al., 2022). It remains to be seen where the cracks in the historical bloc may emerge, and if its strategies are actual signs of authority crises, but there are avenues of research to analyse how the war of position waged by the challengers will bear fruit for the establishment of a new, just, and inclusive common sense.