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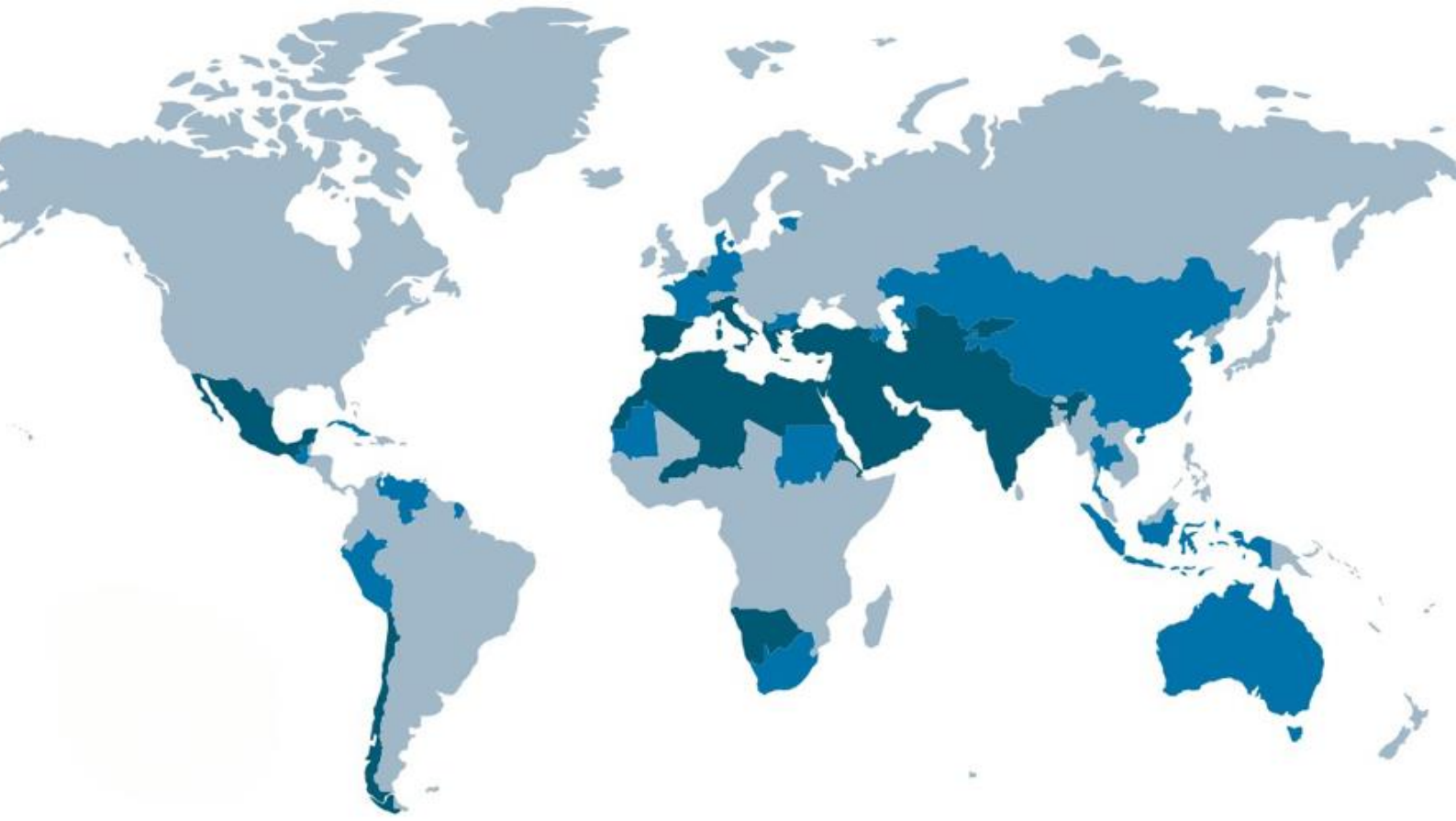

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Abstract

With Europe striving towards net zero carbon emissions, green hydrogen is a key priority in EU energy policy due to its significant potential for decarbonizing energy-intensive industries. Germany, Europe's largest economy and carbon-emitter, significantly shapes EU energy policy with its domestic *Energiewende* model, and has been among the first member states to pursue an explicit global hydrogen strategy as part of its foreign policy. However, given the country's energy import-dependence on Russia, the latter's invasion of Ukraine in February 2022 and resulting breakaway of Russo-German trade relations has invoked a *Zeitenwende* ('turning point') in Germany's foreign policy: diverging from past narratives on economic interdependence and market-driven politics, geopolitical and national security considerations are becoming more pronounced. This 'paradigm shift' thus has important implications for Germany's hydrogen strategy, a cornerstone in its current foreign policy. Drawing onto critical geopolitics, this paper critically examines Germany's hydrogen discourse since the onset of the war, and its repercussions for Europe's and the global energy transition. The critical discourse analysis of official speeches and statements by the government between February 2022 (i.e. shortly after Russia's invasion of Ukraine) and March 2023 reveals how the German government constructs and rationalizes its identity, interests and spatial beliefs about the international system vis-á-vis Russia in its geopolitical discourse on hydrogen. Contextualizing and discussing the assumptions driving Germany's hydrogen discourse in the context of EU and international energy governance sheds light on how the government's narrative (re)produces the geopolitics of hydrogen, and promotes a competitive policy framework that might risk undermining more cooperative and equitable efforts in the global energy transition.

Keywords: hydrogen, critical geopolitics, discourse, energy transition, Germany, EU

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Introduction

With Europe forging its path towards net zero carbon emissions by 2050, green hydrogen, a renewable energy carrier that can be generated from wind, solar and hydro power, is key to achieving the climate targets the European Union (EU) has set out in its Green Deal. While renewable electricity is expected to decarbonize a large share of Europe's energy consumption, a gap will remain that hydrogen has the potential to fill in a cost-effective way, particularly as it can replace fossil fuels in energy-intensive industries across Europe (European Commission, n.d.). To concretize this vision, the EU's Hydrogen Strategy was adopted in 2020 and puts forth a comprehensive policy framework for the investment in infrastructure, clean technology and multilateral cooperation with partner countries for the production and transport of renewable hydrogen (European Commission, n.d.). The REPowerEU strategy published in 2022 further accelerates the EU's plans to scale-up the global hydrogen market for its decarbonization, aiming for 10 million tons of domestic renewable hydrogen production and 10 million tons of renewable hydrogen imports (European Commission, n.d.). Hence, limited in the quantity of renewable hydrogen the EU can domestically generate, its member states' energy partnerships and trade agreements with renewable resource-rich regions are decisive for Europe's green transition (Bhagwat & Olczak, 2020).

Germany, the EU's largest industrial economy, has long played a key role in EU renewable energy policy with its domestic *Energiewende* ("energy transition") strategy. Despite the ongoing energy transition process, it remains one of the countries with the highest energy import dependency in Europe; in 2020, it imported 63.7 percent of the energy it consumed, an even higher amount than the 57.5 percent the EU imported (Wettengel, 2023). Given its large dependence on energy imports for its domestic decarbonization process, Germany has thus been upfront in linking the *Energiewende* to its foreign policy and diplomatic strategy abroad (Hayek, 2022). Since 2020, Germany has been one of the first EU member states to pursue an explicit 'global hydrogen diplomacy' through its so-called H2diplo project with various countries around the world, to incentivize the production and secure its supply of renewable hydrogen in the future. As such, Germany has already established 'diplomatic hydrogen offices' in Nigeria, Angola and Saudi Arabia, with more being planned, and is launching several other green hydrogen projects across the globe (Auswärtiges Amt, 2021)

Given the multiple potential applications of hydrogen across various industrial sectors, and Europe's large energy import-dependence, hydrogen is quickly becoming a major geopolitical issue (Noussan et al., 2021). Tellingly, it has been deemed the "new oil" (Van de Graaf et al., 2020) of the global green transition. Yet the geopolitical landscape of hydrogen

will differ from that of fossil fuels; renewable resources such as solar, water and hydro power are geographically more dispersed than oil and natural gas - every country has access to sun, wind or water (Van de Graaf et al., 2020). These dynamics are fundamentally transforming the interest- and actor-constellations in the global energy economy, creating a new class of importers and exporters alongside technological and geo-economic rivalry that differs from, but is geopolitically no less relevant than the 'old' fossil-based regime (Pflugmann & De Blasio, 2020). As such, new dependencies on hydrogen imports are also creating new energy security concerns for Europe's green transition (Leonard et al., 2021).

The onset of Russia's war against Ukraine on the 24th February 2022 has put an unprecedented spotlight on the debate around Europe's – and particularly Germany's - heavy dependence on energy imports, first and foremost from one single supplier: Russia (Wettengel, 2023). Given its historically active engagement and tight economic cooperation with Russia over oil and natural gas for decades, the latter's invasion of Ukraine has pushed Germany into an "identity crisis" (Tooze, 2022) in which national security and energy independence have moved to the top of the political agenda. Prior to the war, Germany obtained around 55 percent of its gas, 50 percent of its coal and 35 percent of its oil from Russia; as of January 2023, the government no longer imports any Russian energy sources (Federal Government, 2023c). To bridge resulting energy shortages and deal with the drastic rise in electricity prices, Germany has brought its coal-fired power plants back onto the grid and is securing supplies from new partners such as Qatar (Witsch & Stratmann, 2022).

German chancellor Olaf Scholz has infamously coined his country's acceptance of this new reality as a *Zeitenwende* ("turning point in time") (Tooze, 2022). According to Scholz (2022), German and European security interests now heavily rely on "diversifying its energy suppliers and routes and on investing in energy independence" away from Russia, first and foremost with renewable energy carriers like hydrogen. While the return to fossil-based energy production is deemed short-term in order to quickly deal with the ongoing energy crisis, in the long term, renewables, particularly hydrogen, are considered key in its domestic decarbonization process (Scholz, 2022). Forging energy partnerships with strategically important regions due to their vast wind, solar and hydro power potential therefore currently dominates the German foreign policy agenda. In short, German energy politics are no longer just a question of economic welfare and environmental protection, but of national security and geopolitical interest.

Russia's war against Ukraine and the *Zeitenwende* shift it has invoked therefore have profound implications for the way Germany frames and pursues its hydrogen interests in foreign

policy. While in the past, the German energy transition was marked by norm-diffusion around climate change, environmental sustainability and energy efficiency – in line with the EU's renewable energy regime -, the shift towards energy security and geopolitics has changed this narrative profoundly (Wiertz, Mattissek & Kuhn, 2022). This has important ramifications for the EU as a whole; since EU member states have considerable leeway in their external energy relations, the rationale driving Germany's hydrogen strategy is also decisive for Europe's and the global green transition as a whole (Jörgens & Solorio, 2017). As such, Germany's current race for bilateral partnerships with renewable resource-rich countries might risk having adverse effects on the efficient development of a global hydrogen market, fueling regional fragmentation and competition rather than multilateral cooperation. Not least in light of concerns over the implications of Germany's hydrogen diplomacy for exporting countries and a new "green colonialism" (Van de Graaf et al., 2020, p. 4) that centers on geopolitical competition for partnerships while treating exporting countries merely as hydrogen 'generators', it is important to critically examine Germany's hydrogen strategy in the broader context of EU energy governance.

Against this backdrop, this research takes a critical geopolitics approach to examine the discourse behind Germany's hydrogen ambitions since the war, and its ramifications for the energy transition. The central social constructivist assumption upon which this research builds is that political actors use specific narrative strategies to influence international politics and its structure in their favor; the 'international' does not objectively preexist but is constituted and reproduced by these narratives and discursive practices (Miskimmon, O'Loughlin & Roselle, 2015). In line with the ongoing debate on the geopolitics of renewables in general, and hydrogen in particular, the central concept guiding this research is geopolitical discourse, which sits at the heart of critical geopolitics (Müller, 2008). The critical study of geopolitical discourse has rarely been employed in the context of renewables; yet it provides a valuable theoretical lens to understand how the geopolitics of renewable energy are brought into existence through language (Lederer, 2022). This thesis aims to answer the following research question: *how is the German hydrogen discourse constructed?* This overarching question is guided by two sub-questions: *to what extent is hydrogen discursively securitized and geopoliticized?* And *what are the broader political implications of this discourse in the context of Europe's and the global green transition as a whole?*

As hydrogen is an emerging field in EU energy policy, a research gap exists in the critical study of the discourses surrounding it. Moreover, little attention has yet been paid to the implications of states' renewable energy discourses in the broader context of the green

transition. Critically investigating Germany's hydrogen discourse, particularly in light of its *Zeitenwende* in foreign policy, is crucial since the articulation and legitimation of hydrogen-related interests and policy options have important ramifications for future energy cooperation. The contribution of this research is therefore twofold: first, it builds on, and adds a novel dimension to, existing research by taking a critical theory perspective on the geopolitics of renewables, a perspective that so far remains strikingly absent. Second, by situating German hydrogen discourse in the broader context of EU energy policy, this research aims to shed light on the implications for multilateral hydrogen governance and the green transition as a whole.

The remainder of this paper is structured into five chapters: Chapter 1 comprises the conceptual framework; it provides a short overview of existing literature on the geopolitics of renewables, which serves as the basis for contextualizing and discussing EU (renewable) energy policy and the specific role Germany and its hydrogen debate play against this backdrop. Chapter 2 develops the analytical framework along the concept of geopolitical discourse, placed within the broader theory of critical geopolitics. This chapter will conclude by situating renewable energy in this framework, and deduce the research question(s) and preliminary argument. Chapter 3 outlines the research design and methodology, data selection and collection process in this research. Chapter 4 presents the results of the analysis of Germany's hydrogen discourse in line with the overarching research question, followed by a discussion and interpretation of findings along the two sub-questions guiding this research. Final Chapter 5 concludes by reflecting on central arguments, the limitations to this paper as well as potential avenues for future research.

1. Conceptual Framework

While a bulk of scholarship has engaged with the overall development of (renewable) energy geopolitics over the past two decades, little attention has yet been paid to the critical investigation of discourses underlying states' renewable policy promotion. As this thesis seeks to fill this gap, prior to addressing the research question(s), it is important to first review existing scholarship on the geopolitics of renewable energy, and situate EU energy policy against this backdrop.

1.1. The Geopolitics of (Renewable) Energy: State of the Art

The research agenda on the geopolitics of renewable energy has only recently started to emerge. Traditionally, the geopolitics of energy describe "the influence of geographical factors, such as the distribution of centers of supply and demand, on state and non-state actions to ensure

adequate, affordable and reliable supplies of energy" (Bradshaw, 2009, p. 1920). This mainstream perspective defines energy geopolitics first and foremost in terms of energy *security;* that is, reliable and affordable supply of energy in the case of consumer countries, and reliable and sustainable demand for energy in that of producer countries (Goldthau, 2010). Central to this conceptualization have been the geographical distribution of (fossil) resources across the globe, and its ramifications for the energy security of exporting (in terms of reliable demand) and importing (in terms of reliable supply) countries. In line with this, considerations around oil and gas security have dominated the literature on energy geopolitics, focusing on the power relations and interdependencies between fossil-fuel exporting and importing countries, particularly since the 1970s oil crises and resulting destabilization of global energy supply and demand structures (Goldthau, 2010).

The *Report on the Geopolitics of the Energy Transformation* published by the International Renewable Energy Agency (IRENA) in 2019 is considered a "watershed moment" (Scholten, Criekemans & Van de Graaf, 2019, p. 195) in the emerging scholarship on the geopolitics of renewables. Entailing the first extensive mapping of the geopolitical consequences of the new energy age, the report identifies six major enabling trends that characterize the geopolitics of renewables: the declining costs of green technology, climate change, countries' national energy targets to reduce emissions, technological innovation, private sector involvement, and public scrutiny of states' actions in the green transition (IRENA, 2019). Taken together, the report suggests, these dynamics will reconfigure the 'geopolitical map': on the one hand, it will be characterized by states' scramble for new energy partnerships, supply chains and regional cooperative networks; on the other hand, governments' strive for independence to enhance energy security - particularly by importing (consumer) countries who are most vulnerable to supply instabilities resulting from external geopolitical events – will likely induce the fragmentation of international energy markets (IRENA, 2019).

The transition towards renewables is thus fundamentally transforming the geopolitics of energy (Hafner & Tagliapietra, 2020; Blondeel, 2021). Energy security is no longer limited to sufficient supply at affordable prices; it now extends to include principles such as diversification of supply chains, resilience of domestic energy systems, market integration and fragmentation, and economic transparency in order to deal with the realities of climate change within a 'new age of power politics' and an increasingly fragmented international system (Bordoff & O'Sullivan, 2023). As such, renewable energy issues "lie at the heart of major geopolitical flash points and security concerns" (Florini & Sovacool, 2011, p. 59); global

political stability, environmental sustainability and economic prosperity are all dependent upon the global green transition.

Moreover, power relations between producer and consumer countries are changing compared to the current fossil-based international energy economy, in which gas and oil reserves are scarcer and far more geographically concentrated than solar, wind and hydro power (Scholten & Bosman, 2016). This gives way for a potentially more positive outlook on the geopolitical implications of renewables: the broader availability of renewable power sources across countries can lead to less concentrated energy markets, and the resulting more decentralized renewable energy-generation potential enhances the resilience of national energy systems, decreasing importers' existing dependencies on a few fossil-exporting regions such as the Gulf States (Scholten et al., 2020). States' strategic focus around energy issues is thus expanding beyond geography-determined access to supply towards industrial competition over green technologies, concerns over infrastructure and the development of electricity grids (Scholten & Bosman, 2016).

Hence, though the future renewable energy system will differ in terms of supply-demand dynamics and power relations between importers and exporters, it will not be "free of the geopolitical tensions associated with fossil fuels" (Blondeel, 2021, p. 12); it too will be marked by competition over critical materials required for green technologies, such as lithium and cobalt, which – just as oil and gas – are geographically concentrated, leading to a "scramble for resources as countries […] seek to control strategic aspects of the supply chain" (Blondeel, 2021, p. 10) of renewable energy. Moreover, industrial rivalry over clean technology and critical materials, and the regionalization of energy relations due to infrastructure and grid development over shorter distances is likely to lead to a decline in international trade, thereby transforming global energy markets (Scholten et al., 2020). The geopolitics of renewables will thus partly be marked by a shift towards more domestic energy production, decentralization and trade regionalization, and an intensification of competition over clean technology and critical raw materials needed for electricity generation (Scholten et al., 2019)

As such, despite the emergent multilateral world order, the renewable energy economy might become "one of fragmentation instead of multilateral cooperation" (Scholten et al., 2019, p. 197) that has different implications for exporting and importing countries. In the energy transition, "the game shifts from control over resources to control over clean technologies" (Bazilian et al., 2019, p. 5), but, as emphasized above, this does not mean less geopolitical tension compared to the fossil-fuel regime. While it is too soon to tell who will be winners and losers of the geopolitics of renewables, wealthy consumer countries who can become more self-

sufficient while being at the forefront of green technology innovation will likely benefit the most from the green transition (Scholten et al., 2020). Notably, their policymaking around renewables will be driven both by concerns over security of supply on one hand, and economic efficiency considerations through international trade on the other hand (Scholten & Bosman, 2016). The future geopolitical map is thus determined by how these political considerations around renewables are balanced between nationalist policies focused on energy independence, diversification and self-sufficiency, and a more multilateral approach to economic and market-interconnectedness that comes with new dependencies and vulnerabilities (Bazilian et al., 2019).

Such questions are particularly relevant to consider in the context of multilateral projects like the EU, whose decision-making processes are fundamentally shaped by the dynamics between national and *supra*national interests. The following section therefore situates and discusses EU energy policy against this backdrop.

1.2. The EU Energy Policy 'Paradox': Between Market Forces and Geopolitics

The dichotomy between security- and market-driven approaches to renewable energy can be further conceptualized in the context of EU energy policy. Energy has always been a complex EU policy field due to its multiple dimensions that cross-cut other domains such as foreign policy, trade, environment and economic policies (Westphal, 2006). Against this backdrop, scholars have approached EU energy policy mainly along two dimensions: market liberalism (energy governance) and geopolitics/security (energy diplomacy) (Herranz-Surrallés, 2016; Correljé & van der Linde, 2006).

Given the geopolitical dimension intrinsic to (renewable) energy discussed above, the EU's member states remain "the single most important group of actors in the process of EU policymaking" (Jörgens & Solorio, 2017, p. 6). Though according the EU with some (limited) authority over energy questions, the 2009 Lisbon Treaty preserves member states' sovereignty over sensitive issue such as the general structure of supply; "crucial energy security related measures with strong diplomatic overtones […] remain firmly with member states given the unanimity requirement in such cases" (Leal-Arcas & Filis, 2013, p. 1245). Hence, while the EU does have implicit regulatory authority over its external energy policy, for example in relation to its environmental laws, this competence does not extend to questions of member states' energy supply security and national energy mix (Calliess & Hey, 2013). Instead, the external dimension of EU energy policy is characterized by the EU's limited capacity to control the foreign energy relations of its member states; the latter have considerable leeway in designing

their energy-related strategies vis-á-vis third countries, which are driven by complex considerations that reach beyond purely market-based concerns (Leal-Arcas & Filis, 2013; Youngs, 2014).

The complexity of EU energy policy reflects the tension between approaching energy security as a market-based governance problem and a strategic, supply-based concern of national interest. Given the EU's identity as a market-liberal actor, its energy security strategy has largely been rooted in a regulatory governance approach, focusing on "rules-based open market energy trade rather than ad hoc bilateral partnerships" (Goldthau & Sitter, 2014, p. 1468). Though some scholars have argued that the EU has become a more strategic actor due to growing concerns over energy security issues vis-á-vis Russia, its energy policy is still primarily viewed as regulatory in line with neoliberal principles, rather than geopolitical interests (Siddi & Kustova, 2021; Herranz-Surrallés, 2018; Bercero & Nicolaidis, 2021). The EU's market-liberal policy paradigm emphasizes trade cooperation in a multilateral order, and views trade liberalization and effective institutions as the best means to ensure energy security (Correljé & van der Linde, 2006; Chaban & Knodt, 2015). Under this governance approach to the green transition, the central assumption is that "external trade and development policy are the instruments to promote competitive and transparent low carbon energy markets and to secure access to energy resources" (Barra & Svec, 2018, p. 247).

This energy *governance* that primarily relies on market forces is challenged by states' energy *diplomacy* which approaches energy security based on a more strategic logic (Herranz-Surrallés, 2016; Goldthau & Sitter, 2014). Rooted in a realist conception of international relations, the main actors under this paradigm are states, and the primary driver behind energy policy is national security, thus centering around a (geo)political security rather than economic logic (Proedrou, 2019). As such, energy diplomacy pursues two main goals: building and maintaining energy security based on secure supply flows; and the utilization of energy resources to advance geopolitical aims in the context of power rivalries (Goldthau, 2010; Proedrou, 2019). In contrast to the market-liberal paradigm, this approach thus turns "energy security into an integral part of foreign and security policy-making […] requiring national authorities to engage actively in security of supply measures" (Correljé & van der Linde, 2006, p. 537). Here, bilateral partnerships are essential instruments to ensure energy supply security through 'strategic diversification' (Herranz-Surrallés, 2016). In light of the geopolitical challenges of the energy transition, such bilateral diplomacy has become particularly prevalent in states' foreign policy (Griffiths, 2019; Bovan, 2020).

This creates a 'paradox' in EU energy policy; the market-liberal approach of EU energy governance does not sit well with the fact that member states primarily view energy as geopolitical security problem (Proedrou, 2019). This divergence between EU- and state-level rationales driving energy policy has important ramifications for the external dimension of EU energy policy; the strategic nature of energy as a security issue that links it to states' foreign policy agendas constrains the EU in its own competence to pursue external energy relations (Leal-Arcas & Filis, 2013; Szulecki et al., 2016). Instead, due to national sovereignty over energy security, member states' (bilateral) energy diplomacy is constitutive of the EU's external energy policy.

EU energy policy thus takes place "in a field of tension between governance based on market and institutions (and the rule of law) on one hand, and state-centered, power-based geopolitics on the other" (Westphal, 2006, p. 58). This 'paradox' profoundly affects Europe's green transition; as Goldthau (2010) notes, states' increasing focus on energy diplomacy reflects the "general perception that global energy politics has become a zero-sum game" over resources (p. 25). Given policymakers' growing awareness about the geopolitical implications of the energy transition, this inherently poses a risk for the EU's governance approach to be subordinated to more geopolitical energy agendas member states pursue abroad (Siddi & Kustova, 2021). Already in the past, member states' bilateral strategies to secure their energy supply have fueled intra-EU tensions as well as accusations of lacking solidarity and commitment to the European project (Natorski & Herranz-Surrallés, 2008). Facing the need to adjust EU energy governance in order to quickly and efficiently manage the green transition, it is thus particularly important to closely examine member states' national energy strategies (Pastukhova, Pepe & Westphal, 2020). The subsequent section takes a closer look at Germany's energy transition in this context.

1.3. Europe's Green Pioneer? The German *Energiewende*

Renewable energy and climate change started to emerge as a distinct policy priority at the EU-level with the publication of the European Commission's White Paper on Renewable Energy Sources (RES) in 1997 (Solorio & Jörgens, 2020). With the formal competence given to the EU under the 2009 Lisbon Treaty, renewable energy policy became increasingly politicized and contested between the EU- and national level, intensified by past economic and financial crises, rising electricity prices and costly infrastructure investments (Solorio & Jörgens, 2020). In light of member states' sovereignty over their national energy mix, EU RES policy has been marked by diverging views on renewable energy given countries' different economic and

political needs; Eastern-European countries have generally been more concerned about security given their energy dependence on, and proximity to, Russia, while those situated at the core of the EU have primarily approached renewables as a business opportunity in the context of climate change and energy efficiency (Mata Pérez, Scholten & Smith Stegen, 2019).

Germany with its *Energiewende* ("energy transition") has usually been counted among the latter, viewing renewables through the lens of market efficiency rather than security (Mata Pérez et al., 2019). Precisely because of this synergy with the EU's governance approach, the country played a pioneering role in RES promotion at the EU-level (Vogelpohl et al., 2017). Arguably no other member state has politically been influenced as much by its domestic energy transition process as Germany with its *Energiewende* (Solorio, Öller & Jörgens, 2014; Szulecki et al., 2016). In line with the EU's market-based energy policy paradigm, Germany's *Energiewende* strategy has been a source of 'soft power' (normative influence), revolving around economic and energy efficiency against the backdrop of climate change; as such, Germany has acted as an important 'cognitive leader' through norm-diffusion about the green transition (Solorio et al., 2014; Quitzow & Thielges, 2022).

In light of this, the country had significant strategic influence in the design and push for EU regulation in line with its national preferences around renewable energy; from the early 2000s on, it shaped and diffused the EU's market liberalization strategy, contributing to the partial 'Europeanization' of RES policy (Vogelpohl et al., 2017). Though supply security has always been a central pillar of German energy politics, this was considered the task of the private sector, leaving national security and geopolitics largely outside the *Energiewende* narrative and strategy (Surwillo, 2019). As mentioned above, Russia's war against Ukraine, however, has put a new spotlight on such concerns. The following section briefly summarizes the history of Russo-German energy relations before contextualizing the events of the 24th February 2022 against this backdrop.

1.4. Germany's *Zeitenwende*: The Russian Factor

A general observation among scholars has been that the Russian-Ukrainian gas disputes in 2006 and 2009 moved the issue of energy security in the EU higher up on the agenda (Goldthau & Sitter, 2020; Rodríguez-Fernández, Fernández Carvajal & Ruiz-Gómez, 2020). Most notably, Russia's annexation of Crimea in 2014 shifted European governments' attention to the impact of geopolitical developments on energy security, which is not only dependent on a functioning internal EU energy market but also on strategic efforts to secure external supply (Youngs, 2014; Bocse, 2019). The increased salience of EU energy security has further accelerated the tensions

between the EU's market-liberal paradigm and the sovereignty-driven diplomacy approach towards energy issues, resulting in a form of mixed authority in external energy policy that continues to challenge the legitimacy and efficiency of EU energy governance as a whole. The heightened awareness around energy security as a common EU issue has not fundamentally transformed, let alone superseded, the EU energy policy 'paradox' towards more concerted multilateral action in energy security (Herranz-Surrallés, 2018). Instead, the latter is still the "prerogative of the nation state" (Westphal, 2006, p. 58).

Russia's war against Ukraine and the *Zeitenwende* it has incited in Germany are particularly relevant to consider against this backdrop. In light of its traumatizing history under Hitler's National-Socialist regime, German foreign energy policy towards the former Soviet Union after the end of World War II revolved around a paradigm of interdependence and economic cooperation that strongly rejected 'power politics' (Gaskarth & Oppermann, 2021). Throughout the 1970s and 1980s, West German chancellor Helmut Schmidt even risked political friction with its most important ally, the United States, in order to sustain its extensive energy trade with the Soviet Union (Bösch, 2014). Consistent with this rapprochement policy, after German unification in 1990, the concept of 'Geopolitik' (geopolitics) explicitly served as a negative backdrop in German foreign policy against which the country defined its identity and role as an international actor, emphasizing a European "Verantwortungspolitik" (politics of responsibility) instead of "Machtpolitik" (power politics) (Behnke, 2012, p. 109).

The cooperative relations between West Germany and the Soviet Union forged in the context of the Cold War *détente* set course for the long-term partnership over oil and natural gas with Russia (Bösch, 2014). As such, "the de-politicization and commercialization of energy relations was an important part of German energy policy especially vis á vis Russia for decades" (Szulecki et al., 2016, p. 554). Despite the heightened awareness around energy security beyond economic terms that manifested at the EU-level post-2006, German-Russian energy cooperation was upended neither by the Russian-Ukrainian gas crises of 2006 and 2009, nor by Russia's annexation of Crimea in 2014 (Surwillo, 2019). Instead, 'business as usual' continued to characterize German foreign energy policy towards Russia, particularly in regards to its pipeline politics - the Nordstream 1 & 2 projects - to channel natural gas from Russia to Europe (Westphal, 2020). It was precisely this persistent business logic and Germany's lack of interest "in the energy security agenda" (Szulecki et al., 2016, p. 562) that were considered a potent force for the further advance and harmonization of RES policy at the EU-level.

Russia's invasion of Ukraine on the 24th February 2022 has fundamentally challenged this proposition. The *Zeitenwende* it has provoked breaks with Germany's historically friendly

engagement under the banner of *Wandel durch Handel* ("change through commerce") with Russia, and the more general rejection of geopolitics as a principle guiding its foreign policy (Blumenau, 2022). The pertinence of this shift is particularly high given that it was the Social Democrats – current chancellor Scholz's party – who fathered Germany's *Ostpolitik* ("politics with the East") in the Cold War. While the overall "extent to which the ambitions expressed by Scholz will be translated into actual politics remains to be seen" (Blumenau, 2022, p. 1897), the new narrative shakes the traditional pillars of German foreign energy policy, which thus far was predominantly following the logic of markets (that is, supplies at the lowest price) and the idea that energy was a reliable foreign policy tool to improve political ties. Yet in light of the war, German energy relations will be fundamentally reshuffled along dynamics that reflect "geopolitical fault lines rather than market logic" (MSC, 2023), driven by security concerns and strategic interests.

As such, a realist understanding of international energy relations is manifesting that possibly creates tensions with Germany's historically embedded self-understanding and responsibility as a pacifism-committed multilateral actor (Gaskarth & Oppermann, 2021; Blumenau, 2022). The ongoing war has moved Germany's energy policy towards a new "discursive emphasis on national security" (Wiertz et al., 2022, p. 1), where past economic and climate-related interpretations of the German energy transition are giving way to a more 'pragmatic' narrative that emphasizes energy security, diversification and independence. As a result, a distinct "energy security logic of emancipation" (Surwillo, 2019, p. 51) has arguably emerged that focusses on self-reliance and autonomy around energy issues. Most importantly, this 'new' geopolitical framing of energy in German discourse is no longer limited to the 'old' fossil fuel regime but extends to renewables, which are a key to Germany's future energy security.

It is thus crucial to critically examine how this discursive shift manifests around one issue that currently dominates German energy discourse: hydrogen. The final section of this Chapter contextualizes Germany's hydrogen politics against this backdrop.

1.5. The 'Hydrogen Hype': From *Energiewende* to *Zeitenwende*?

The hydrogen debate in Germany was initiated in 2018 with the 'Dialogue Process Gas 2030' and gained traction with the publication of Germany's 'National Hydrogen Strategy' (NHS) in 2020 (Belova et al., 2023). While the incorporation of hydrogen into Germany's existing energy system remains still unclear, particularly in light of the war, it is widely considered the 'silver bullet' to meet national climate and energy targets (Westphal, Dröge & Geden, 2020). The NHS

promotes the rapid development of a German hydrogen economy, with €7 billion earmarked for the development of the hydrogen value chain across all German industrial sectors (Westphal et al., 2020). Moreover, €2 billion are planned to be invested in bilateral partnerships with renewable resource-rich countries like Morocco and Namibia, since the German government currently expects merely 13 percent of its national hydrogen needs in 2030 to be generated domestically; the rest will need to be imported (Westphal et al., 2020).

In light of this continuing dependence on energy imports from third countries, the government has launched an international funding instrument called H2Global for the purchase of green hydrogen from partner countries abroad. By awarding contracts to the lowest producing bidders and then auctioning off the hydrogen to the highest possible price in Europe, H2Global aims to bridge the difference between the (high) prices at which hydrogen is currently available on the world market, and the (lower) prices at which hydrogen can be resold regionally and used economically (BMWK, 2022a). This double-auction model also serves as the current blueprint for the European Commission's plans to create a Hydrogen Bank, which would essentially translate Germany's state-level hydrogen funding scheme into an EU-level instrument (Parkes, 2022).

The 'hydrogen hype' is also reflected in Germany's extensive efforts to influence EU policy on the regulation of hydrogen in the context of environmental laws (Kurmayer, 2023). A case in point has been German lobbyists' battle with the European Commission over the definition of criteria to determine what counts as renewable ('green') hydrogen (Kurmayer, 2023). Given Germany's large dependence on Russian oil and gas, the country now has a particularly high stake in shaping EU hydrogen regulation in its favor. Another hydrogen-related row has been the dispute over the H2MED (formerly MIDCAT) pipeline: in light of the discontinued Russian energy imports, MIDCAT was planned to transport natural gas – and later green hydrogen - arriving from North Africa to Spain, Portugal, via the Pyrenees to France and onward to Germany (Iden, 2022). This was met with resistance by French president Emmanuel Macron, who argued that another gas pipeline would not solve the continent's energy crisis but merely undermine ongoing decarbonization efforts (Von der Burchard & Hanke Vela, 2022). The countries' leaders eventually agreed to replace the MIDCAT plans with H2MED - a 'green energy corridor' based on two new pipelines -, which is hoped to benefit from EU funding since it, unlike MIDCAT, is a hydrogen-only project (Basso & Messad, 2022). Nevertheless, Franco-German tensions continue to exist over questions of energy security vis-á-vis climate change and Green Deal ambitions, fueled by both countries' long-standing differences in opinion regarding the controversial topic of nuclear energy (Rose, Carreño & Abnett, 2023).

Germany's current hydrogen-acceleration plans and the updating of its NHS further reflect the difficult balancing-act between concerns over energy security on one hand, and the adherence to climate targets and decarbonization on the other. While the original NHS 2020 by the previous conservative government under chancellor Angela Merkel focused on 'green' hydrogen (i.e. generated from renewable resources such as wind, hydro and solar power), the war and resulting energy insecurity have induced the Scholz-led government that took office in December 2021 to accelerate its hydrogen strategy. The current draft outlines the government's plans to double the planned domestic electrolysis capacities by 2030, and extends to the use of natural gas-derived 'blue' hydrogen as an interim solution (Schulz, 2022). Blue hydrogen requires substantive Carbon Capture and Storage (CCS) rates if CO2 emissions are to be avoided, and is considered less energy efficient than the burning of natural gas (Kurmayer, 2022). In light of this, experts have warned against blue hydrogen being an excuse to continue the use of fossil fuels, thereby actually undermining the energy transition (Van Gaal, 2023). Moreover, the generation of green hydrogen, too, is very electricity-intensive; expanding its use past essential industry applications to individual needs such as domestic heating and transport – which Germany has been lobbying for – might risk higher CO2-emissions, if fossil fuels have to "fill the resulting gaps in the electricity grid" (Eberhardt, 2023, p. 11).

Moreover, the urgency with which the new 'traffic light' coalition – consisting of the Liberals, Greens and Social Democrats – are currently scaling up their hydrogen plans is further intensified by Germany's recent nuclear phase-out in April 2023. The government's decision to exit emissions-poor nuclear power while reinvesting into fossil fuels has been contested against the broader criticism that both past and current rates of progress on renewables have been far too slow to meet Germany's supply security and climate goals without nuclear power (EURACTIV, 2023). Yet German Minister for Economic Affairs and Climate Action, Robert Habeck (Greens), repeatedly assured that Germany's energy supply was guaranteed thanks to high gas storage levels and new liquified natural gas (LNG) terminals, and predicted an increase in the share of renewables in the German energy mix to 80 percent by 2030 (Klein, 2023). Hence, with many other European countries currently increasing investments in atomic energy to reduce emissions, Germany's exit decision now requires a massive scale-up of renewables if the country is to meet its energy demand *and* climate targets.

Against this backdrop, it is therefore important to understand and critically investigate how concerns around energy efficiency and sustainability are becoming increasingly interlinked with, and potentially displaced by, security-related interests around hydrogen. As the first (and to this author's knowledge thus far only) ones to examine German discourse on

hydrogen, Belova et al. (2023) trace the evolution of hydrogen as a political and economic issue in German discourse since the initiation of the Gas 2030 Dialogue and publication of the NHS, drawing onto German media coverage on hydrogen between December 2018 and May 2021. They find that Germany's hydrogen discourse under the period of study was dominated by economic considerations around the production and application of hydrogen in light of climate change and energy efficiency, leaving geopolitical interests largely outside the narrative (Belova et al., 2023). While the authors note that strategic considerations around hydrogen became more pronounced with the NHS, economic-technical narratives continued to be the main drivers behind the hydrogen discourse, underpinned by political actors' normative emphasis on climate change, energy efficiency and sustainability (Belova et al., 2023).

As such, their findings suggest that German hydrogen discourse in the period under study was in line with the *Energiewende* narrative and policy approach that has been guiding RES promotion both in Germany and at the EU-level, as discussed above. However, their research only spans the period between 2018 and 2021; that is, Germany's hydrogen discourse under the previous Merkel-led government coalition, prior to the war. The authors themselves note that as of 24th February 2022, "Russia's invasion of Ukraine has completely changed the conditions for the hydrogen ramp-up in Germany (and the EU) as well as the discourse accompanying it" (Belova et al., 2023, p. 13).

It is therefore crucial to examine *how* Germany's hydrogen discourse is constructed since the onset of the war, and the possible implications thereof for wider EU and international energy relations in the context of the global green transition. This present research aims to fill this research gap in three interrelated ways: first, building on the findings discussed above, it examines the discourse on hydrogen since Russia's invasion of Ukraine to explore how the war and the *Zeitenwende* it has invoked manifest in Germany's hydrogen narrative. Second, instead of looking at media coverage, this research critically examines the German government's discourse; as hydrogen is a cornerstone of Germany's current energy diplomacy, engaging with the government's narratives can shed light on how discourse functions in foreign hydrogen policy and the implications thereof. Third, drawing onto critical discourse theory, this research complements and expands the existing scholarship by focusing on both the micro- and macro-level of language to critically engage with, and interrogate underlying assumptions and beliefs. This novel discourse-critical approach to renewable energy can shed light on the German government's particular definition of 'reality' around hydrogen policy since the onset of the war, which has important implications for energy cooperation at the EU-level and beyond.

The following chapter develops the analytical framework utilized in this research by drawing onto critical geopolitics, which provides a valuable yet rarely utilized theoretical lens for the critical engagement with energy discourses in the context of the geopolitics of renewables.

2. Analytical Framework

2.1. Towards A Critical Geopolitics of Renewable Energy

Building on the above, the central theoretical premise from which this research departs is that while geography plays an important role in terms of material and territorial factors, the intrinsic political dimension of energy that makes it an instrument of statecraft and foreign policy ultimately trumps such geographical conditions (Lederer, 2022). States' meaning-making around energy issues and resulting political decision-making are the prime drivers that (re)produce the geopolitical map of renewables; the latter is not an 'objectively given' reality but is constituted through actors' sense-making and meaning-production around renewables in foreign policy. As such, the geopolitics of renewables are, and will further be, determined by its politics rather than its geography; by the political identities, beliefs and interests driving states' foreign policy in the context of renewable energy (Lederer, 2022).

The concept of geopolitical discourse, which sits at the heart of critical geopolitics, provides a useful lens to critically investigate these identities and beliefs, approaching states' foreign policy as discursive practice from a social constructivist perspective (Müller, 2008). The critical study of geopolitical discourse has rarely been employed in the context of renewables. As the revision of existing scholarship on renewable energy geopolitics in Chapter 1 shows, current research generally treats material and geographical dimensions as a given; that is, the geopolitics of renewables is taken for granted as an objective, material phenomenon. Taking a discourse-critical approach allows moving beyond this traditional preoccupation with material and geographical characteristics of renewable energy in order to understand how "specific spatial categories are taken up in discourses of [renewable energy] and how identities are being formed" (Lederer, 2022, p. 664) around the issue. As such, the central objective of critical geopolitics is to problematize the link between geographical claims about world politics and the international system, and how these are being (re)produced through discursive strategies (Ò Tuathail, 1994).

Critical geopolitics therefore approaches discourse as a strategic tool in international politics that defines and elicits specific beliefs about the international space (Pamment, 2014). It is rooted in a Foucauldian understanding of the world as simultaneously material and

discursive; that is, as both defined by structural conditions and language (Dalby, 1991). The critical study of geopolitical discourse therefore offers a valuable analytical framework to examine how narratives and storylines are strategically used in foreign energy policy (Ò Tuathail, 1998). Investigating and gaining an understanding of these narratives is important since they are essential political power resources; they set "constraints on the imaginable and actionable, and [shape] perceived interests" (Roselle, Miskimmon & O'Loughlin, 2014, p. 76) in international relations. Precisely because renewables are becoming an essential strategic tool for countries to achieve a degree of energy autonomy throughout the next decades, it is crucial to critically examine the productive power of underlying discourses.

2.1.1. Geopolitical Discourse in Foreign Policy: Spatializing World Politics

Broadly speaking, discourse describes "a group of statements which provide a language for talking about – a way of representing the knowledge about – a particular topic" (Hall, 1992, p. 155). Hence, at the same time, discourse puts structural limits on the other ways of meaning-production around the issue; as a result, the effect of discourse is that it acts not only as a cause but also as a barrier to policy (Diez, 2014). As such, the key purpose of the narratives and storylines international actors strategically use is to constitute, rationalize and legitimize the relations and policies they seek to pursue.

Geopolitical discourse essentially captures these storylines and narratives of foreign-policy makers about national identity and interest (Behnke, 2012). It is the "discursive practice by which intellectuals of statecraft 'spatialize' international politics in such a way as to represent it as a 'world' characterized by particular types of places, peoples and dramas" (Ò Tuathail & Agnew, 1992, p. 192). The importance of identity and security is particularly pronounced within the language of geopolitics, which "provides allegedly objective and material criteria for circumscribing the boundaries (and internal logics) of national interest" (Guzzini, 2012, p. 3). A central assumption of geopolitics as discourse is that the geographical position of an actor determines the course and purpose of its foreign policy and diplomacy; for example, Germany's position at the heart of Europe is decisive for the way it discursively constructs its foreign policy (Behnke, 2012). Moreover, major geopolitical events (like the end of the Cold War) can profoundly impact how an actor frames and pursues its foreign policy; with its self-understanding and role being openly challenged by the events taking place, the actor mobilizes the language of geopolitics as a means to resolve its foreign policy 'identity crisis' (Guzzini, 2012).

In short, the study of geopolitical discourse seeks to explain "how geographical claims and assumptions function in political debates and political practice" (Kuus, 2010, p. 1). It sheds light on how places are defined, either as threats or as strategically important, given the international political context at a point in time (Dodds, 1994). Geographical notions and descriptions of the world incorporate profound political meanings and understandings that cannot be taken for granted but must discursively be investigated; there is no fixed meaning of 'geopolitics' (Dalby, 1991). Rather, foreign ministers, state officials but also academics who engage in statecraft and foreign policymaking are "practitioners of geopolitics" (Kuus, 2017, p. 10), discursively delimiting and dispersing specific assumptions and knowledge around a (geo)political issue; their narratives and storylines (re)produce world politics.

2.1.2. Security as Discursive Practice

This critical understanding of geopolitics therefore challenges mainstream perspectives on power and geography in international relations by taking a discursive approach to deconstruct how foreign policy elites spatialize international politics into particular types of places (Dodds, 1994; Ò Tuathail, 1998). As such, geopolitical discourse has significant political effects; its specifications of reality define the ways deemed appropriate in which to pursue foreign policy and security interests (Dalby, 1998). Intrinsic to critical geopolitics is therefore the concept of security as a discursive practice that presents something as a threat to national security. The essential feature of security as discursive practice is its rhetorical structure that revolves around the language of survival, dramatizes a policy issue and presents it as one of supreme priority (Buzan, Wæver & de Wilde, 1998). Geopolitical discourses that designate something as a security issue therefore have important implications for international politics: first, they 'endanger' the international order by identifying certain issue areas that require priority action; second, they 'order' the international arena by "defining who (or what) threatens whom and how […] they locate the home nation in the complex web of antagonistic international relations […]"; and third, they 'condition' policy making and actions deemed necessary and legitimate to respond to the issue at hand (Hagmann, 2018, p. 195).

As such, securitizing discourse lifts a particular issue above the realm of politics, thereby institutionalizing a sense of urgency and certain set of viable actions to respond to it (Buzan et al., 1998). The securitization of an issue therefore heightens political awareness, and can fuel fast and efficient policy responses at the state-level; security has an "incredible capability of mobilizing actions and resources" (Trombetta, 2014, p. 135). At the same time, this centrality of state authority in dealing with the issue challenges the premises of the liberal paradigm

guiding today's largely 'de-securitized' international economy and inter-state relations, where prioritizing national security can undermine economic openness and development (Buzan et al., 1998). The revival of geopolitical discourse can thus lead to a form of (re)securitization of international politics, under which the spatial and security logics inherent to geopolitics become a 'self-fulfilling prophecy'; they systematize and (re)order international politics along these dimensions, which in turn defines how foreign policy and international relations are conducted (Guzzini, 2012).

In sum then, processes of securitization are intrinsic to geopolitical discourse: "the intersubjective construction of a […] spatial order affects the security agenda" (Knecht, 2012, p. 38) by categorizing the world into places of lesser and higher importance to national security, which in turn shapes a country's foreign policy agenda. Crucially, processes of securitization around a policy issue are not limited to discourse itself; they are reinforced by the policy choices and 'pragmatic' decision-making of political actors (Balzacq, 2009; Trombetta, 2014). This productive power of discourse therefore is the central assumption that unites the understanding of security and geopolitics as linguistic practice. The following section situates renewable energy in this framework.

2.2. Hydrogen Discourse: Cooperative Governance vs. Competitive Diplomacy

The discourse on renewable energy is inherently geopolitical in that it designates the geographical distribution of resources as a threat to national security, thereby spatializing and securitizing the international order along 'geographical imaginaries' around energy (Mason & Zeitoun, 2013). The degree of securitization (i.e. how dominant national security features in foreign policy discourses around energy) determines whether states display 'geopolitical' behavior and pursue competitive nationalist policies (here, the security logic trumps the economic logic), or whether they behave more cooperatively along a market-driven 'global governance' approach to energy (here, the economic logic trumps the security logic) (Wilson, 2019). Crucially then, these processes of securitization of energy can result in a lack of solidarity that inhibits the development of a common, multilateral approach to energy in interstate relations (Khrushcheva, 2011).

Geopolitical energy discourse can thus be placed along the dichotomy of energy governance and energy diplomacy outlined in Chapter 1. Under the market-driven, multilateral governance approach, energy security is narrated as a market-based problem that is solved best through market liberalization, economic interdependence and global trade cooperation. In contrast, under the energy diplomacy approach, states discursively securitize and geopoliticize

energy as an access-based issue that requires competitive policies; they become protective of their energy autonomy and independence (Wilson, 2019). While governments securitize energy for a diverse set of economic, political or institutional reasons, a country's energy import dependence is the main pre-condition for such energy securitization in foreign policy (Özcan, 2013; Wilson, 2019). As a result, energy policy is no longer left to market processes alone; instead, the state intervenes in market operations through nationalist trade, investment and production policies that encourage competitive rather than cooperative state behavior (Wilson, 2019). Such "resource mercantilist strategies" (Wilson, 2019, p. 119) are decisive for international energy relations as they encourage states to behave competitively rather than cooperatively.

Hence, when energy is securitized, the economic logic is subsumed by a (geo)political one, resulting in a grammar around self-sufficiency and the diversification of supplier countries according to their strategic relevance as energy producers (Özcan, 2013). Energy-related interests and policies are thus not only securitized but "geopoliticized" (Meunier & Nicolaidis, 2019, p. 107) by discursively constructing energy as a geopolitical problem that requires competitive foreign policy, e.g. in the form of bilateral trade relations and strategic partnerships to secure energy supply. Moreover, these geopolitical assumptions and beliefs in decisionmakers' discursive practices around energy politically order the international political space by mapping and defining threats to energy security and the appropriate policy responses to it (Lopez-Lucia, 2020).

The geopolitical energy discourse therefore no longer defines and approaches specific regions in the international order as primarily political communities, but spatializes the international system in terms of countries' strategic meaning and function for an actor's energy security and foreign policy interests (Lopez-Lucia, 2022). As a consequence, a pronounced geopolitical discourse on energy as a national security issue can inhibit the cooperative governance of energy by encouraging rivalrous nationalist energy strategies in which the state takes a central intervening role, rather than going through international markets; in contrast, a more market-liberal, economically-oriented discourse on energy can facilitate the multilateral, cooperative logic in international energy politics (Wilson, 2019).

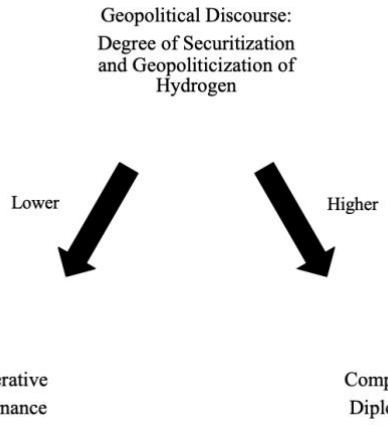

Figure I Geopolitical Discourse and Approaches to Hydrogen Policy

Hence, the degree to which hydrogen is discursively securitized and geopoliticized since the onset of Russia's war ultimately determines Germany's policy approach to hydrogen politics, which has repercussions for Europe's and the global green transition (see *Figure 1*). The 'competitive diplomacy' approach holds that an emphasis on strategic independence and national energy security potentially inhibits global and equitable efforts in the transition towards renewables, thus requiring more extensive concerted action at a later stage which might risk eroding both domestic and international trust in Germany's and Europe's climate commitments; under the 'cooperative governance' approach, prioritizing climate-change driven multilateralism and mutually-beneficial cooperation in developing a globally integrated hydrogen value chain would likely induce a fast energy transition.

2.3. Research Question(s) and Preliminary Argument

Along this analytical framework, this research examines how German hydrogen discourse is constructed and the implications thereof, guided by two sub-questions: to what extent is hydrogen discursively securitized/'geopoliticized'? And what are the policy implications of this discourse in the context of Europe's and the global green transition as a whole? Based on the framework developed above, this research makes the following preliminary argument: Germany's hydrogen discourse since the onset of Russia's war features a dominant competitive narrative, under which hydrogen is framed as a key to geopolitical interest and German national security. This geopolitical discourse on hydrogen subsumes economic-technical framings of renewables that characterized Germany's energy transition narrative in the past. The security logic behind hydrogen might inhibit more cooperative approaches to renewable energy governance, which can slow down Europe's and the global green transition as a whole. The

following chapter outlines the research design, data collection and analysis process of this research.

3. Research Design

3.1. Critical Discourse as Theory and Method

Critical discourse analysis in foreign policy generally follows Foucault's theory of society and power; it is concerned with how identities, subjects and issues are discursively constructed by international actors, and how these discourses (re)produce political reality (Fairclough, 2001). Since discourses are constitutive of international politics, their study requires examining *how* they are constructed and articulated (O'Shea, 2019). The basic premise is that states' identity in foreign policy discourse is interlinked with the construction and representations of the policy issue (Hansen, 2006). The goal of critical discourse analysis therefore is to show how certain 'facts' about the international system "are dependent upon a particular discursive framing of the issue in question and that this framing has political effects" (Hansen, 2006, p. 20). Hence, the key feature of critical discourse analysis is its combination of both explanatory and emancipatory objectives; it simultaneously seeks to explain and critique the productive power of discourse (Fairclough, 2017).

In the context of this research, the objective of discourse analysis is to critically engage with such discursive representations of reality, and to interrogate these prevailing understandings within German hydrogen politics (Diez, 2014). It provides a tool to examine the "constitutive and disciplining power of geopolitical discourses as truth regimes" (Müller, 2010, p. 2). In line with its social constructivist epistemology and discourse-critical framework, this research thus takes an interpretivist methodological approach that does "not see political problems as objectively given but [focusses] on the processes by which certain issues become problematized, that is, discursively rendered into politically addressable problems" (Kurowska & de Guevara, 2020, p. 10). Language is not only the driving force behind human knowledge about 'reality' but brings reality into existence; critical discourse analysists are thus not interested in how the world is, but *how it is brought into being* (Cruickshank, 2012). Studying German hydrogen discourse is therefore particularly valuable as it enables the researcher to critically examine the source of all politics: language (Stevenson & Dryzek, 2012).

3.2. The Discourse-Historical Approach

In line with its analytical framework rooted in critical geopolitics, this research specifically utilizes Jäger's (2011) method of Discourse-Historical Analysis (DHA), a subtype of critical

discourse analysis which is particularly well-suited as a methodological tool in social constructivist work (Aydin-Düzgit, 2014). DHA not only is one of the most prominent approaches within critical discourse studies; it also is particularly suitable in this research as it takes an agency-oriented stance on discourse as a linguistic strategy of international actors (Mattissek & Reuber, 2004; Müller, 2011). The question of agency is essential in the discursive construction of international politics; it understands language as profoundly political, where identity is fundamentally interlinked with the strategic use of discourses (Balzacq, 2009). This sits well with geopolitical discourse as conceptualized in this research; it emphasizes stories and narratives in foreign policy as an intentional (strategic) and structurally-conditioned practice in the context of energy security and geopolitics (Müller & Reuber, 2008).

In contrast to poststructuralists' take on discourse, which generally sits uneasily with questions of agency, this research therefore approaches discourse as a 'pragmatic act', a strategic technique that not only incorporates the discursive act itself (that is, the linguistic and heuristic devices strategically used in narratives) but also pays attention to the actor, its position and identity, as well as the context in which the discourse is embedded (Balzacq, 2009). Taking Jäger's actor-oriented approach to discourse analysis thus offers a valuable analytical frame that is "compatible with the storylines of strategic acting in foreign policy" (Müller & Reuber, 2008). Moreover, due to its explanatory and emancipatory dimension, utilizing DHA allows for conclusions about how certain geopolitical representations of the international system and its actors are discursively constructed; how they produce and legitimize specific interests and policy options; and the implications thereof (Müller, 2011). As such it sheds light on both the constitutive and the causal effects of discourse.

Analytically, DHA is concerned with the language of persuasion and justification (the 'topoi') as the key elements of discourse (Wodak & Meyer, 2001). As such, it follows three main steps: it identifies main themes within discourse (the *discursive topics*); it examines how subjects and issues are referred to linguistically, and what arguments are used to rationalize and legitimize these representations (the *discursive strategies*); and it analyzes rhetorical devices (the *linguistic means*) (Jäger, 2011; Reisigl, 2017). This method pays particular attention to how these elements in discourse are constructed and reproduced, as well as interlinked with each other, within a specific period of time (Reisigl, 2017). It also seeks to investigate which alternative meanings are excluded or 'silenced' by privileging certain discursive representations around the issue at hand over others (Milliken, 1999).

Hence, the major strength of DHA is that it "allows for the integration of both macro- and micro-analysis of texts" (Aydin-Düzgit, 2014, p. 359). For example, identifying discursive

topics and strategies related to security in foreign policy can point the researcher towards the potential erosion of the normative bases of policymaking (Aydin-Düzgit, 2014). Moreover, predication analysis (that is, analyzing the specific verbs, adverbs and adjectives attached to nouns) sheds light on how a country constructs other actors in relation to itself; passive attributes may reflect a denial of agency (Milliken, 1999). DHA therefore pays equal attention to the text surface to qualitatively evaluate main themes, rhetorical means and strategies, as well as to identity-related statements; taken together, these shed light on the prevalent understanding of actors, the issue and the international system that drive the discourse, and the policy perspectives it sets out (Jäger, 2011).

Moreover, narratives in foreign policy tend to revolve around a particular setting with key actors, their attributes and actions; they include causal claims; and they typically articulate lessons and policy suggestions for the future (Hagström & Gustafsson, 2021). Crucially, at the basis lies the discursive construction of opposing identities; of 'heroes' and 'villains', of the 'Self' and Other' in the context of international politics (Hagström & Gustafsson, 2021). DHA therefore is analytically and methodologically well-suited to examine the discursive construction of these components and the argumentative strategies employed. Focusing on discursive topics and strategies sheds light on how the core features of diplomacy and foreign policy – the international system, the actor's identity and values, and the issue and its policy options – are discursively constructed and legitimized (Carta & Narminio, 2021).

In sum then, in the context of hydrogen as a foreign policy issue, at the micro-level this research looks at the discursive representation of Germany as an international actor; at the discursive representation of its identity and values; at the discursive representation of its policy-making approach; and the ways in which these three dimensions legitimize each other in the discourse on hydrogen (Larsen, 2018). Ultimately, at the macro level, DHA allows the researcher to engage with important empirical questions on the power relations, and the spatial assumptions behind the discourse that constitutes and legitimizes German hydrogen interests (Mattissek & Reuber, 2004).

3.3. Data Selection and Collection Process

In critical discourse studies, the central assumption is that the choice of empirical data is dependent upon the theory and methodology applied in the research (Cruickshank, 2012). It is a circular process in which the researcher moves back and forth between theory and concepts, and the analysis and interpretation of data (Wodak & Meyer, 2001). In line with this, the data sources and sample in this research were purposively selected. Since discourse is codified in

text, official political statements and speeches around hydrogen by the Federal Government and its Federal Ministries between February 2022 (shortly after onset of Russia's war against Ukraine) and March 2023 were analyzed. Primary texts like official statements and speeches are epistemologically and methodologically best-suited to analyze political discourse; they are "created in the context of an ongoing discursive battle and have (at least in theory) formed, absorbed and grasped the strongest representations" (Jensen, 2013, p. 84) of the issue. Hence, these types of documents were chosen as they were deemed most valuable in order to identify the 'strongest' storylines and most dominant narratives in the German government's hydrogen discourse.

The data for this research was accessed and collected using Polit-X, a German digital databank and monitoring tool that allowed the researcher to systematically source and pool a comparably large number of speeches and statements on the topic, which otherwise would have been impossible to collect and analyze, given the limited time frame available for this research. The data was identified based on key terms in conjunction with "Wasserstoff" (hydrogen) and "Wasserstoffstrategie" (hydrogen strategy). As mentioned above, critical discourse analysis presupposes an abductive, circular relation between theory and discourse, whose conceptualization "should […] be grounded in prior interpretations of empirical analyses" (Wodak & Meyer, 2001, p. 14). Hence, the conceptual and analytical framework developed in this research provided the basis for the identification of additional key terms applied in the selection and coding of documents. These included, among others, "Europäische Union" (European Union), "multilateral" (multilateral), "global" (global), "Markt" (market), "Kooperation" (cooperation), "Partnerschaft" (partnership), "strategisch" (strategic), "Diversifizierung" (diversification), "Souveränität" (sovereignty), "Versorgung" (supply), "Geopolitik" (geopolitics) and "Sicherheit" (security).

Once the examination of further documents did no longer produce new coding categories, the amount of data was deemed sufficient. A total of forty documents containing official political statements and speeches were identified throughout this iterative collection and selection. In an elaborate abductive process, this data was then manually coded and analyzed following Jäger's approach to DHA to reveal the particularities of German discourse on hydrogen in the context of its foreign policy and role as an international actor. In line with the discourse-critical framework on renewable energy security and geopolitics, the texts were examined to shed light on the government's assumptions and representations of Germany's role as an (international) actor and its values, the policy framework around hydrogen that the German government promoted, as well as the spatial assumptions underpinning its discourse

(see *Table 1*). Once the addition of new data did no longer produce new findings, the critical discourse analysis was considered complete (Jäger, 2011).

To supplement the discourse-critical analysis of texts, the researcher conducted four unstructured elite interviews in April 2023 that served as background information and context on the issue, given the recency of the topic and limited existing scholarship on hydrogen geopolitics and policy in Germany. As interviews are not typically used in critical discourse studies, as well as due to confidentiality agreements with the interviewees, they did not serve as data for the analysis in this research itself but provided the researcher with additional context in which to appropriately situate the findings and interpretation of the critical discourse analysis (Talja, 1999). Since "elite informants are key decisionmakers who have extensive and exclusive information and the ability to influence important […] outcomes" (Solarino & Aguinis, 2021, p. 650), interviewing these allowed for a more in-depth understanding of organizational discourses and perspectives on the issue, which proved valuable to validate, reflect on and further contextualize the text-based findings in this research.

For transparency reasons the researcher deems it necessary to point out that the four interviews were conducted with German policymakers and experts from the German Federal Foreign Office, Agora Energiewende, the German Corporation for International Cooperation (GIZ) and the Research Institute for Sustainability (RIFS Potsdam). The four interviewees were strategically selected and approached due to their leading role and expertise in German hydrogen policy. Agora Energiewende and the RIFS Potsdam are among the leading institutions that provide substantive research and currently advise the German Federal Government on policy issues related to the energy transition, and specifically hydrogen. Moreover, alongside the Federal Foreign Office, the GIZ is the main actor in developing and implementing Germany's hydrogen diplomacy.

The following chapter presents the results of the analysis in line with the overarching research question, followed by their discussion and interpretation along the two sub-questions guiding this research.

4. Results and Discussion

4.1. Results

The German government's hydrogen discourse between February 2022 and March 2023 can broadly be categorized along the two main analytical dimensions central to this research: a 'cooperative governance' narrative revolving around multilateralism, market forces and global

cooperation, and a 'competitive diplomacy' narrative focusing on supply security, diversification and geopolitical interests (see *Table 1*).

Key themes/assumptions	Cooperative Governance	Competitive Diplomacy
Germany as an (international) actor	European/international solidarity and responsibility 'Eye-level partner' Normative leader in the energy transition Reciprocity	Europe's industrial leader 'Oppressed' by Russia Supply security Resilience Freedom National Welfare
Decision-making/Policy framework	Global alliances International cooperation Multilateralism EU regulatory framework Global value chain 'Win-Win' partnerships Efficiency Market-driven Concerted approach Climate-change centered	Strategic energy autonomy Diversification/reducing dependencies German government as central actor/source of power 'Reliable suppliers' Acceleration Pragmatism Technology as a strategic, geo-economic foreign policy tool Security-centered
Spatial ordering	Globalized world Openness EU/Germany as normative and technological leaders	Industrial leaders in the North vs. emerging economies in the South Partners based on strategic importance Russia as a threat to Europe and its partners

Table I Narratives in the German government's hydrogen discourse since Russia's invasion of Ukraine

4.1.1. Competitive Diplomacy: Security, Diversification and Reliable Suppliers

Overall, themes and assumptions in line with the geopolitical, securitized approach to energy – energy supply security, diversification, strategic independence and a central role of the state in pursuing these objectives – dominated the German government's narrative around hydrogen in the period under study. The main actors driving and articulating the hydrogen discourse were chancellor Olaf Scholz (Social Democrats), Federal Foreign Minister Annalena Baerbock (The Greens), and Robert Habeck (The Greens), Federal Minister for Economic Affairs and Climate Action. Terms such as energy security and supply security, energy (in)dependence, diversification, pragmatism and acceleration were most frequently used in the speeches and statements analyzed. The language of security – the use of words such as 'threat', 'survive', 'strategic' or 'fight' - were particularly pronounced. Russia was explicitly referred to as the villain using "energy as a weapon", against which Germany and the EU had to defend

themselves (Bundesregierung, 2022h; Bündnis 90/Die Grünen, 2022). It was repeatedly expressed that “the Russian war of aggression against Ukraine shows us that a rapid expansion of renewable energies is essential in order to become independent of Russian energy as quickly as possible” (BMWK, 2022e).

As such, German hydrogen discourse and its underlying spatial assumptions were tightly linked with its self-referential juxtaposition to Russia; the latter served as the discursive ‘Other’ against which Germany rationalized its identity as an international actor, and its political and normative role in the promotion of hydrogen. For example, shortly after Russia’s invasion of Ukraine in February 2022, Habeck stated that “it needs the expansion of renewables, the consistent reduction of consumption at all levels, diversification and the rapid ramp-up of hydrogen. Then it will be possible to become largely independent of Russian gas by mid-2024. As the German government, we are doing everything we can to make this happen" (BMWK, 2022d). In line with this, a year after the onset of the war, the government legitimized Germany’s intensified efforts to promote diversification and strategic energy autonomy in its hydrogen efforts based on its ability to cope without Russian energy supplies since September 2022: as Scholz stated, “we Germans know what we are talking about. After all, we in Germany have made ourselves independent of Russian energy in the past twelve months. That was a feat of strength” (Bundesregierung, 2023a).

Reflecting this strategic interest, particular emphasis was put on ‘pragmatism’ in promoting the “fast” market ramp-up of hydrogen in order to “secure energy supplies in the long-term” (BMWK, 2022h). ‘Acceleration’ and ‘speed’ played a central role in the hydrogen ambition the German government articulated as part of its foreign policy. The promotion of a “rapid” hydrogen build-up was rationalized mainly in terms of its necessity for Germany’s “long-term energy independence” (Bündnis 90/Die Grünen, 2022) and supply security, both at a national and European level. “The faster we are with hydrogen, the less we will then need gas," Habeck emphasized in the context of the new energy partnerships with the UAE and Qatar (Bundesregierung, 2022a). As was further stated, “today more than ever, we need to place our energy supply on more robust pillars. An accelerated energy transition is the be-all and end-all for an affordable, independent and secure energy supply” (BMWK, 2022f).

The government stressed the need for a “fast, pragmatic and ambitious development of hydrogen infrastructure” both at the national and EU-level, as “the market ramp-up of hydrogen is of immense strategic importance both for Germany and the European Union” (SPD, 2023). It was further notable that in the context of this emphasis on speed and pragmatism, the government justified its plans to import blue hydrogen from its “close ally” Norway “for a

transition period" in order to "realize the fastest possible high-volume imports of hydrogen and ensure the rapid availability thereof" (BMWK, 2022b).

Overall, climate change and environmental sustainability were less pronounced as independent themes and argumentative strategies in Germany's hydrogen discourse. Generally, it was particularly notable that in most statements and speeches, notions around climate change and sustainability were used only in conjunction with security- and national welfare-related arguments around renewables in general, and hydrogen in particular. For example, Baerbock stated that "when we talk about the energy transition today, we are talking about our security. The climate-neutral transformation is the security task of our time" (Auswärtiges Amt, 2023). Moreover, Bettina Stark-Watzinger, the Federal Minister for Education and Research, emphasized the need for an "acceleration in the development of the hydrogen economy to secure our welfare and protect the climate at the same time" (BMBF, 2022b).

As such, references to climate neutrality were typically employed as a supplementing argumentative strategy for German hydrogen promotion at a global scale; at the same time, energy security and national welfare served as the main themes to rationalize and legitimize Germany's hydrogen ambitions. Here, Baerbock explicitly referred to renewables and green hydrogen as "freedom energies" necessary to "secure our freedom and security" (Auswärtiges Amt, 2022b). Moreover, in the context of Germany's energy partnership with the Netherlands, Habeck stressed that "an intelligent climate policy kills two birds with one stone: it frees us from the clutches of Russian fossil fuel imports and at the same time protects us from the catastrophe that an unchecked climate crisis would bring" (BMWK, 2022i).

Moreover, the discursive prevalence of security-related themes was particularly high in instances of 'story-telling', in which the government sought to justify its return to coal and natural gas for a transition period: "Russia's brutal war of aggression on Ukraine is forcing us to reconnect coal-fired power plants to the grid for a short time" (Bundesregierung, 2022f). As such, survival from the Russian 'threat' and 'oppressor' served as a rationalization for Germany's pursue of natural gas imports and rapid construction of liquified natural gas (LNG) terminals since the onset of the war: "The LNG law is necessary to free us from dependence on Russian energy supplies in the short term and to secure the heat supply in winter. Lasting energy independence can only be achieved with as many renewables and energy efficiency as possible. That's why we will massively accelerate the pace of renewables expansion" (Bündnis 90/Die Grünen, 2022).

In the months to follow, hydrogen promotion as the 'long-term goal' continued to serve as the core justification for the government's expansion in LNG infrastructure, arguing that this

"new import infrastructure for liquified gas can also be used for hydrogen in the future" (Bundesregierung, 2023b). As such, the government repeatedly emphasized that its energy security required "short-term tough decisions" and a "temporary" focus on natural gas, but that the conversion of such LNG infrastructure for the transport of hydrogen would "quickly get started in order to set the course towards climate neutrality early" (Auswärtiges Amt, 2022b; BMWK, 2022b). The securitization and geopoliticization not only of hydrogen but renewables in general were further intensified by the government's occasionally explicit use of the language of power: for example, Baerbock stated that renewables will "shift the international balance of power", making climate and energy-policy "the geopolitical task of our time" (Auswärtiges Amt, 2023).

Supply diversification and the pursue of "strategic independence" and "sovereignty" also served as the basis for the spatial arrangements promoted by the German government's hydrogen discourse (Auswärtiges Amt, 2023). In light of Germany's continuing dependence on energy imports in the future, it was emphasized that "we need to become less dependent on developments in individual regions of the world or for specific energy sources. That is why it is right to diversify" (BMF, 2022). Against the 'enemy' Russia, Germany's dependency on energy imports was securitized and geopoliticized, resulting in a hydrogen policy promotion around "strategic global alliances" and partnerships in order to help "Germany and Europe achieve energy security and independence" (Bundesregierung, 2023d). Alongside main fossil-fuel exporting countries like the Gulf States, partner countries in Germany's "development cooperation" - African countries such as Namibia and South Africa, East Asian countries as well as the EU's Eastern Neighborhood - were referred to as "particularly important partners for the diversification of our value chains" and "German and European energy supplies" (BMWK, 2022k; Bundesregierung, 2023d).

Moreover, rather than leaving the development of the hydrogen economy to the market, the government emphasized that it would "strategically choose" partners, and that it could "not afford to act solely on the 'business-first' credo without factoring in long-term risks and dependencies" (AA, 2022c). Instead, it was necessary to "think geo-strategically" about these partners, and whether they would represent "reliable suppliers" of hydrogen in the long term (Auswärtiges Amt, 2022a). Here, third countries were framed in terms of their "high potential" and "ideal preconditions for the generation of green hydrogen", making supply chains with these countries an important factor for German energy security as well as the pursue of its climate goals (Bundesregierung, 2022b; see also BMWK, 2022c; BMBF, 2022a). In many instances, these included passive attributes and representations, stating that countries like Africa

are “ideally suited for the build-up of a global hydrogen supply chain” (BMBF, 2023). The dominant theme in this context thus was the explicit role and strategic decision-making of the government in developing the global hydrogen economy. As Baerbock further stated: “We are creating new energy and climate partnerships. But the crucial thing is that these energy partnerships must now be reliable. That's why we are taking a very close look at the countries and regions with which we are concluding these partnerships, so that we don't have to pay such a high price again in economic terms” (Auswärtiges Amt, 2022c).

In a few instances, this strategic focus on ‘reliable’ partnerships to support Germany in achieving its energy supply security was supplemented with references to Germany’s “value-oriented” foreign policy (Auswärtiges Amt, 2022c). In explicit reference to the ‘enemy’ Russia, values and norms around cooperation and partnership were securitized and geopoliticized: “Our country's security and prosperity are based on an international order that binds might to right, just as the United Nations Charter does with its principles. But to preserve these principles in a multipolar world, we must work with all those countries that are willing to stand up for and develop this order. We will therefore always base our relations in the world first on partnership and cooperation. But anyone who disrupts the rules-based international order or seeks to destroy it - like Putin's Russia - must expect Germany's resistance” (Bundesregierung, 2022g). As such, Germany’s strategic partnerships were also represented as strategic ideological means to “actively counter the growing risk of a new bloc formation in the world” (Bundesregierung, 2022g).

Another prevalent yet more subtle discursive theme was the government’s repeated articulation of Germany’s identity as an “industrial site”, the industrial heart of Europe (Bundesregierung, 2022h). Alongside energy security, independence and diversification, safeguarding the location and competitiveness of its industry at not only a European but global scale was emphasized as a reason for securing reliable and sufficient hydrogen imports in the future: “this way, we make our industry more competitive and our country more independent” (Bundesregierung, 2023b). Central were arguments about “guaranteeing the location security” of industry both in Germany and Europe (BMWK, 2022j). Similarly, Germany’s current large-scale investments in hydrogen were rationalized as the central factor that would decide which countries are leading the “new industrial revolution” and “become the winners of tomorrow” (Auswärtiges Amt, 2023). In line with this geopoliticization of hydrogen as a tool for industrial rivalry, chancellor Scholz further emphasized the strategic centrality of investing in clean technologies, which are “often developed in Germany, but which can now be used on a large scale throughout the world. And that's exactly what we need to do, to get industrial processes

and procedures off the ground that are suitable for enabling growth in the world that is not harmful to the climate" (Bundesregierung, 2022b).

Crucially, this articulation of Germany's identity as an industrial and technological leader also entailed specific spatial and power assumptions vis-á-vis partner countries, thereby narratively structuring the international space. For example, at the COP27 in Sharm El Sheikh, Scholz stated: "We will not persuade the citizens of Asia, Africa and the American South that they don't want to have as many cars as we do, that they don't want to be able to live as nicely as we do. They want all that, too, and they'll get it sooner or later. We're not going to persuade them to do without" (Bundesregierung, 2022d). Rather, 'bringing' German technology to these regions was the way to ensure that "this world can sustain this prosperity without the climate and biodiversity suffering as a result. This is a very important task for all of us, because we in Germany can do just that" (Bundesregierung, 2022f). At the same time, Baerbock argued that cooperation with third countries would not be based "on charity that we provide to others [but] as energy partnerships with green technologies used as foreign trade instruments" (Auswärtiges Amt, 2022d). Given this technological and industrial leadership position, the German government emphasized its "willingness" to pursue "energy and climate partnerships between industrial countries and the Global South", where the formers' expertise and technological know-how would enable the latter to develop and reach a level of prosperity "without hurting the climate" (Bundesregierung, 2022b, 2022f; Auswärtiges Amt, 2022f).

4.1.2. Cooperative Governance: Markets, Regulation and Solidarity

Though securitized and geopoliticized framings of hydrogen were dominant, some key themes in line with the 'cooperative governance' narrative were also prevalent in the German government's hydrogen discourse. Generally, discursive emphasis was laid on promoting economic and particularly technological cooperation in the ramp-up of the global hydrogen economy as a means towards global climate neutrality. Here, notions around the need for European and international cooperation to fight climate change were most frequently referred to in statements made by the government vis-á-vis partner countries.

For example, at the 'MENA Europe Future Energy Dialogue' in Jordan, Habeck stated that "new economic perspectives and new forms of cooperation arise through the production of hydrogen and technological innovations" (BMWK, 2022g). The dominant articulated goal was to strengthen cooperative relations both between Germany and the European Union, as well as with third countries in the set-up of a global hydrogen value chain. These assumptions shaped the policy framework which Germany promoted, with itself as a leader particularly in the

development of green technologies. Alongside the expansion of partnerships with "long-term reliable supply countries", it was thus also occasionally articulated, though much less pronounced, that Germany would focus on the "market-driven development" of hydrogen and private investments, which will require a "reasonable regulatory framework" that is "as unbureaucratic as possible" both at the national and EU-level (Bundesregierung, 2022c).

Moreover, it was repeatedly emphasized that green hydrogen – the "gas of the future" – "can only be made available in a large global world-wide economic cooperation context" (Bundesregierung, 2022b). Under the banner of "partnership at eye-level", Germany positioned itself as a technological and normative leader by offering countries around the world financial support in the context of its 'Just Energy Transition Partnerships' in order to "enable progress in these countries […] while Germany equally benefits from the necessary changes" (Auswärtiges Amt, 2022e; Bundesregierung, 2022b). During his visit to Namibia and South Africa, Habeck also stressed that it was "important to shape the partnerships in such a way that both sides benefit from each other" (BMWK, 2022k). The "acceleration of international cooperation" in the development of a global hydrogen economy was presented as the best option for all global actors with an interest in the transition towards renewables and the fight against climate change (Auswärtiges Amt, 2022b).

Crucially, the cooperative governance narrative here dominantly served as an argumentative strategy in relation to geopolitical and security-related framing around hydrogen in light of the war and its impact on German energy security. European solidarity and international cooperation were repeatedly used as rationalization and justification strategies for Germany's interest in a fast, global hydrogen market ramp-up. In many instances, discursive themes and strategies on cooperation were tightly linked with frames regarding German energy security, resilience and the need to reduce dependencies. Here too, Russia was presented as the common 'enemy' against which Germany defined both its own and Europe's identity as a whole. As Habeck stated: "European solidarity is more important than ever in the current energy crisis. This also includes closer coordination between direct neighbors. Europe will not be divided by Russia's actions. … Through closer cooperation between neighboring states, we are also strengthening resilience across the EU" (BMWK, 2022h).

Hence, Germany's identity as a European member state was explicitly articulated to legitimize its hydrogen interests as not only serving national but European energy security. It was repeatedly emphasized that Germany was "taking over responsibility for its European neighbors" and that its current investments in LNG terminals that could then be used for the transport of green hydrogen in the future were a "symbol of European solidarity"

(Bundesregierung, 2022h). The government stated that Germany's current import-focused foreign strategies to gain independence from Russia would not only secure its national supplies but also that of its many neighbors: "the fact is that with all the decisions we have taken to ensure the security of energy supply in Germany, we have at the same time taken a great many far-reaching decisions to ensure the security of energy supply for the whole of Europe" (Bundesregierung, 2022e).

Moreover, in multiple instances, the government emphasized that while viewing "renewables as the way to achieve our freedom and security, […] the energy transition of course remains a cooperative undertaking for us" (Auswärtiges Amt, 2022b). Narratives around values- and rules-based international cooperation were explicitly used to discursively balance Germany's focus on energy security interests, diversification and its goal to reduce dependencies (Bundesregierung, 2023e). It is notable that on several occasions, the government deemed it important to explicitly mention that its hydrogen policy promotion around energy autonomy and the diversification of suppliers was "not about deglobalization" or "one-sided decoupling" but as a way to "ensure that independent developments can take place everywhere, that we can make each other stronger and benefit from each other" (Bundesregierung, 2022g).

Scholz further stressed that the answer to economic security was not to "shut ourselves off from the world or from individual regions, but to expand cooperation with close partners, attract new partners and diversify overall" (Bundesregierung, 2023e). Similarly, Baerbock emphasized that the government was not trying to pursue its energy independence "against other countries but together with them" (Auswärtiges Amt, 2023). In this context, the government also affirmed that Germany's *Energiewende* – its domestic energy transition process – and renewable policy strategy abroad were firmly anchored within the European Green Deal, since "national go-it-alone approaches will not work" in the global green transition (Auswärtiges Amt, 2023).

4.2. Discussion

4.2.1. German Hydrogen Discourse: Between *Energiewende* and *Zeitenwende*

Overall, the analysis demonstrates the degree to which the German government has mobilized the language of geopolitics to make sense of, and rationalize the 'identity crisis' the war has invoked in German foreign (energy) policy. Its explicitly geopolitical discourse on hydrogen since Russia's attack on Ukraine reflects an understanding of renewables as a strategic tool in German foreign policy against the backdrop of energy security and independence. Key themes in this 'competitive diplomacy' narrative around hydrogen since Russia's attack were security,

resilience, diversification, reliability, acceleration and pragmatism. The presentation of Russia as a 'threat' and enemy served as the central discursive reference point for the rationalization and justification of Germany's hydrogen ambitions against the backdrop of security-related and geopolitical interests. The policy framework promoted by this narrative centered around the strategic decision-making and pursue of reliable hydrogen-exporting partners, as market ('business-first') dynamics alone were considered insufficient, even counterproductive, to achieve future energy security and reduce energy dependencies.

Moreover, the 'competitive diplomacy' narrative served as the basis for the spatial arrangements promoted by the government's hydrogen discourse mainly along two facets of Germany's articulated identity: first, it spatialized the international system in accordance with its victimized identity due to being 'oppressed' by Russia, thereby spatially categorizing its own position and role as an actor, as well as that of its European and international partner countries, against this identification vis-à-vis Russia. Second, in line with Germany's self-identification as a technological leader, and its geographical position as the industrial heart of Europe, it spatially juxtaposed its international role and responsibility and that of its close European neighbors (the other 'industrial countries') to the 'Global South' and those hydrogen-exporting countries who could reliably and quickly cater to German supply security interests.

However, at the same time, a 'cooperative governance' narrative around hydrogen coexisted with this 'competitive diplomacy' frame. The former was rooted in notions of European and international solidarity and multilateralism in the global fight against climate change, and promoted a policy framework driven by global market forces and embedded in effective national and EU-level regulation. Against the backdrop of the global green transition, 'word-spanning' cooperation was emphasized as a necessity to develop a hydrogen economy that would be just and efficient in driving the energy transition. While this narrative spatialized the international system to some extent according to Europe's and Germany's leadership role, particularly in terms of clean technology innovation and transfer, it simultaneously incorporated a relatively globalized, interdependent understanding of international energy politics in explicit discursive delimitation from notions of de-globalization and decoupling.

Crucially, the simultaneity of competitive and cooperative framings of hydrogen shed light on how the German government's discourse was driven by assumptions and values rooted in questions of national identity, and how this often created tensions between the multilateral, market-liberal narrative and the more competitive, geopolitical understanding of energy security (Berling, Surwillo & Sørensen, 2022). On the one hand, Germany's self- identification as a technological leader and industrial power induced narratives around responsibility,

solidarity and cooperation in the promotion of a global hydrogen economy. On the other hand, the onset of the war, and Germany's resulting self-identification as being oppressed and threatened by Russia gave way to frames around independence, security and freedom under the new government coalition. Similarly, German identity as an industrial leader and victim to the 'weaponization' of energy by Russia became an argument for enhanced technological rivalry and protective, more state-centered policymaking.

As a consequence, the 'cooperative governance' frame often sat uneasily with the 'competitive diplomacy' narrative; the government repeatedly felt the need to affirm that its hydrogen promotion was still a globally cooperative endeavor, which stood in occasionally awkward contrast to the emphasized need for 'strategically chosen', 'reliable' partners. Similarly, Scholz' argument that Germany was not interested in any form of de-globalization or decoupling but in 'independent developments' across the globe was never elaborated on; the government remained vague about the specific role other European and international actors would play in the hydrogen ramp-up, attributing them mostly with a passive position in catering to Germany's energy security needs. Moreover, the narrative around global solidarity in tackling climate change often acted merely as a – at times somewhat uncomfortable - discursive balancing-act between the geopolitical and the multilateral narrative the government employed in rationalizing its hydrogen-related ambitions. As such, utilizing the discourse of cooperation and dialogue served primarily as a strategic means to justify policies aimed at persuading European and international partners to support the German energy security agenda (Pamment, 2020).

Moreover, the actors driving and articulating the government's hydrogen narrative also reflected the discursive mobilization of geopolitics since Russia's invasion of Ukraine. The fact that Federal Foreign Minister Baerbock was one of the most prominent speakers on hydrogen underpins the strategic, diplomacy-driven understanding of hydrogen as an urgent security issue since the onset of the war. This ties into the more fundamental ideological constellations within the 'traffic light' coalition: both Baerbock and Habeck, who hold two of the most important offices in current German energy politics, are members of the Greens. While accelerating Germany's national hydrogen plans as a prerogative for the energy transition were central components of all governmental parties' 2021 electoral programs, the Greens' original position revolved exclusively around green hydrogen and a clear prioritization of its application (Bündnis 90/Die Grünen, 2021).

The fact that the policy framework that has been discursively promoted since Russia's attack is not limited to green hydrogen – the party's original position – but incorporates blue

hydrogen reflects the securitization of hydrogen due to national welfare-related concerns, and resulting pressure for compromise within the coalition. This is notable given that the issue of blue hydrogen used to be one of the central points of friction between the Greens on one hand, and the Social Democrats and Liberals on the other (Kemmerzell, 2021).

In sum then, Germany's hydrogen discourse since February 2022 reflects the degree to which the government has been balancing between climate-driven renewable energy politics on one hand, and the pragmatism required by the war and resulting energy insecurity on the other. The latter was reflected in the discursive prevalence of arguments around geo-strategic considerations in international hydrogen cooperation, and the 'short-term' necessary decision-making for a transition period to work towards Germany's energy security, first and foremost in the context of LNG and blue hydrogen. At the same time, it was emphasized that the 'long-term' focus was on green hydrogen only, in line with the targets set out in the Green Deal, and that Germany was committed to the market-driven development of the global hydrogen economy, and a globally cooperative approach to the energy transition as a whole. As such, the coexistence of competitive and cooperative frames suggests that German hydrogen discourse after Russia's invasion of Ukraine was situated somewhere between the technical-economic, climate change-driven *Energiewende* narrative, and the more geopolitical, securitized *Zeitenwende* in German foreign policy provoked by the war.

4.2.2. Implications for Hydrogen Governance in the EU and Beyond

The government's hydrogen discourse has important implications for the development and coordination of hydrogen-related policy at the EU- and the international level; as Germany is set to become the biggest hydrogen importer in Europe, its discourse has a strong influence on hydrogen discussions in Brussels (Eberhardt, 2023). First off, the analysis illustrates that to a large extent, "national energy security trumps concerns about climate change" (Bazilian et al., 2019, p. 3). The implications of this for multilateral efforts in the energy transition are particularly relevant to consider in the context of Germany's fear of deindustrialization. By emphasizing the need to protect the location security and competitiveness of its own industry, technological rivalry, national welfare and energy security are increasingly moved to the forefront in German hydrogen policy, to which climate change and environmental security as the prime global reason for an efficient hydrogen ramp-up risk being subordinated. Under this discourse, technological and industrial rivalry become the central determinants of the geopolitical dimensions of hydrogen, which shapes the policy framework promoted and vice versa.

As such, the *Zeitenwende* 'identity crisis' Germany is facing as an industrial power, and the resulting securitization and geopoliticization of hydrogen, might risk overshadowing climate-and energy-efficiency related concerns. For example, the emphasis on industrial location security can further intensify the government's focus on 'blue', natural gas-based hydrogen - which offsets CO2 in its production, and which is deemed more quickly available than its green counterpart - in order to start decarbonizing German industrial processes; this, however, might risk putting more ambitious CO2-reduction plans that go beyond Carbon Capture and Storage (CCS) on hold for the foreseeable future. While CCS technologies can reduce direct emissions of fossil-generated hydrogen, their usage requires a great amount of gas, resulting in additional methane emissions, whose impact on global warming is even higher than that of CO2 (Eberhardt, 2023). Moreover, CCS technologies only capture a fraction of the off-set carbon; the vast amount of emissions remain with upstream and midstream processes; that is, the exploration and production of natural gas, and its transport and storage, which are difficult to reduce quickly and efficiently (IEA, 2023). Germany's push for a fast development of the hydrogen economy could thus perpetuate and prolong the dependence on fossil fuels if hydrogen is produced from natural gas, which would slow down European and international efforts to reduce carbon emissions by 2050.

However, in the context of climate change, time is of the essence; slow, insufficient emissions reduction processes today will require exponentially larger and quicker decarbonization efforts tomorrow. Moreover, the focus on blue hydrogen further determines the spatial arrangements and (re)produces specific power relations in the international hydrogen economy; that is, between those (developed) countries who have the technical means and know-how to minimize carbon leakage in the production of blue hydrogen and those (developing and emerging) economies who lack CCS technologies. Hence, if hydrogen becomes an excuse to continue the use of fossil fuels, this might not only undermine efforts towards carbon neutrality by 'greenwashing' hydrogen and diverting attention and resources away from implementing more energy-efficient solutions; it also risks fueling perceptions of hypocrisy in German energy diplomacy, where developing countries are told to generate hydrogen emissions-neutrally if they want to export it, while Europe continues to rely on fossil fuels. As a consequence, the decarbonization efforts required to meet net zero targets would merely be outsourced to developing countries (De Pous et al., 2020).

Furthermore, large energy-intensive industries will inevitably move to locations both within and beyond Europe where the geographic and weather-related preconditions for climate-neutral industrial production are ideal and therefore most cost-efficient (Dezernat Zukunft,

2023). Sweden is already a prime example for the production of climate-neutral steel (Knitterscheidt, 2021). This might result in a degree of industrial outflow from Germany with its naturally limited hydro, solar and wind power resources. At the same time, previously less industrialized, but for renewable generation geographically and climatically well-disposed EU Southern and Eastern neighborhoods will likely become more important regions in the course of climate-neutral industrial resettlement (Dezernat Zukunft, 2023). A discursive prioritization of German location security and autonomy as Europe's main industrial power can therefore inhibit the effective implementation of a more multilaterally- and sustainability-driven hydrogen approach at the EU level beyond national interests.

In this regard, the dispute over the former MIDCAT pipeline already hinted at the divisive impact the prioritization of national interest and security over questions of efficiency and sustainability can have at the EU-level. Such trade-offs are particularly relevant in the context of the perennially contentious issue of atomic energy and Germany's recent nuclear exit: while several member states, led by France, consider atomic power crucial to achieve the EU's climate targets, the German government has been firm in its resistance against including nuclear energy in EU renewable policy (Waschinski et al., 2023). With the last German nuclear power plants now shut down, hydrogen remains the only viable alternative for large-scale decarbonization processes across energy-intensive industries, if Germany wants to adhere to its exit plan from coal by 2030, too. However, as the analysis above suggests, the fact that all hope lies in one source of energy might give further impetus to geopolitical and security-driven policies on hydrogen over climate change-centered ones. This can further fuel intra-European tensions with those member states aiming to enhance nuclear cooperation within the EU, and who consider Germany's nuclear opposition and exclusive focus on hydrogen to be an adverse trade-off between national security and environmental sustainability. The fact that the Greens firmly reject the EU's plans to define nuclear-based hydrogen as renewable, while accepting natural gas-derived blue hydrogen as 'green', underpins how the divisive issue of nuclear power can inhibit the development of a common EU hydrogen framework.

Similarly, the geopolitical, securitized framing of hydrogen can potentially give rise to accusations of unilateral action - the rather infamous German *Alleingang* ("solo effort)" – among other EU member states. This will be particularly decisive in the context of jointly and effectively implementing the Commission's Hydrogen Bank plans in the near future, which will mirror Germany's own H2Global auction-scheme but targets – unlike H2Global – EU hydrogen producers (Kurmayer, 2022). As critics have already dubbed H2Global as Germany's unilateral pursue of international hydrogen diplomacy, it will be important to signal genuine commitments

to the concerted development of a European hydrogen market, rather than only focusing on the international level (Kurmayer, 2022). Even though it remains the prerogative of member states to pursue external energy relations, a higher degree of coordination and harmonization with the EU's climate and energy diplomacy, rather than governments' solo efforts, is essential in order to induce a fast and efficient energy transition in Europe.

Such multilateral action - both at the European and international level - will also require a more explicit and productive narrative on the active role partner countries in Europe can play beyond just serving Germany's own hydrogen-related security interests. As the analysis showed, the 'cooperative governance' narrative in German hydrogen discourse remained relatively vague about the role of the EU besides 'quickly' providing a 'reasonable' regulatory framework. Focusing more in depth around the specific competencies and significant role of the EU in hydrogen policy, however, might prove crucial in order to signal to other European member states that Germany is genuinely committed to multilateralism, and to create a greater "policy opening" (Romanova, 2023, p. 8) in the development of a common hydrogen approach. This is particularly important not least in the realm of clean technology innovation and investments into RES promotion, where EU-level cooperation and policy harmonization is crucial for both economic efficiency and environmental effectiveness.

Furthermore, the geopolitical narrative can prove counterproductive in that it creates implicit power hierarchies not only between Germany and the EU, but also between the Germany (and as such the EU) and third countries. On the one hand, it was emphasized that the future of Germany's energy security in the context of the green transition will depend on global alliances and international cooperation at 'eye-level' in the development of the hydrogen economy. On the other hand, Germany placed itself in an implicit, occasionally somewhat patronizing, power position vis-á-vis developing and emerging economies; since the latter could 'not be convinced to not want the same wealth', Germany's identity as an industrial country served as an argument to justify its responsibility in providing technologies to the non-industrialized 'Global South' to enable its climate-friendly economic development. This discursive emphasis on using technologies as a strategic foreign policy tool might intensify the geopolitical rationale behind hydrogen, spatializing the world into rivalrous technological blocs "where electrons increasingly replace molecules in concerns about energy security" (Bazilian et al., 2019 p. 5).

Second, and as a result, such spatial 'structuralism' in German hydrogen discourse has important ramifications for the overall power relations in the global hydrogen economy: it implicitly promotes and reproduces a world economy that is dominated by wealthy, developed

and industrialized countries who provide their technologies in a one-sided, top-down manner, thereby legitimizing and entrenching power imbalances around unequal terms of trade and knowledge transfer for hydrogen-exporting countries (Oh, 2019). Yet it will be crucial that the transfer of clean technology is not limited to the provision of hardware (that is, the goods and some skills) but that it includes the diffusion of the knowledge and innovation behind these technologies if to genuinely enable developing countries' large-scale renewable energy production, and their equitable integration into the global hydrogen value chain in the long term (Weko & Goldthau, 2022).

This further ties into the discursive prevalence of arguments around 'diversification' and 'independence', whose repercussions for global hydrogen cooperation are crucial to consider. The securitization and geopoliticization of hydrogen, which has followed from Germany's energy insecurity since the onset of Russia's war against Ukraine, carries the implicit assumption that hydrogen, too, can be 'weaponized'; yet as renewable resources are geographically more dispersed than fossils, most countries will both be producing *and* consuming hydrogen at the same time, likely leading to more symmetric trade relations than those over fossil fuels. Moreover, the possibility to store hydrogen in the future once it is cost-competitive and available in sufficient quantity, makes it almost impossible for exporting countries to use hydrogen as a weapon (Van de Graaf et al., 2020; IRENA, 2019).

It is undeniable that diversifying energy suppliers and reducing one-sided dependencies is key to not only Germany's but Europe's future energy security as a whole, a fact that Russia's war against Ukraine has painfully demonstrated. Yet the nature and choice of Germany's preferred hydrogen suppliers reflects the fact that it remains a deeply geopolitical question from *whom* to reduce dependencies, besides Russia; it does not entail 'like-minded' partners in close proximity such as Norway, who not only share European values and norms but are industrialized and thus technologically-advanced enough to cater to German energy security needs without undermining climate targets; the German-Norwegian partnership for blue hydrogen is a case in point. The language of diversification and independence therefore (re)produces certain geopolitical assumptions that spatially structure the international energy economy into important and less important regions, which can ultimately undermine the development of a globally integrated hydrogen market. These spatial ramifications of Germany's geopolitical hydrogen discourse need to be considered given that many countries, particularly in the Gulf region and Africa, are striving to become future 'green hydrogen hubs', but whose expectations might not be matched by the geopolitical and -economic realities of the hydrogen market ramp-up Germany is pushing for.

Similarly, in tension with proclamations about 'value-based partnerships', the discursive emphasis on 'thinking geo-strategically' in choosing those partners who can deliver sufficient hydrogen as quickly as possible also reflects the extent to which Germany's hydrogen strategy is driven by security-related and geopolitical considerations. A too one-sided discourse around competitiveness and security in the promotion of hydrogen, however, risks displacing more comprehensive and reciprocity-oriented narratives on how to integrate exporting countries into the future hydrogen economy without undermining their local economy, socioeconomic livelihoods and civil participation in the context of environmental justice (Müller, Tunn & Kalt, 2022; Eberhardt, 2023). Green hydrogen will also be vital for exporting countries' *own* decarbonization efforts in the future - a fact that is not being articulated by the geopolitical, securitized narrative behind hydrogen. Instead, the discourse reflects the government's implicit efforts to articulate interests on behalf of others; that is, to present a specific narrative of what partner countries need – and should want – in accordance with Germany's own security and geopolitical interests. However, to retain credibility as a European and international actor, it might prove essential that the discourse acknowledges a more active role for, and the interpretive authority of, its partners in defining their own needs, which are not limited to the production and export of hydrogen in exchange for clean technologies.

Against this backdrop, there also remains the uncomfortable yet crucial Russian factor: in the long term, Europe's and the global energy transition will require some form of (selective) engagement with Russia (Romanova, 2023). Placing hydrogen, and renewables in general, within narratives on security and geopolitics vis-á-vis Russia can push an 'energy policy of fear' driven by protectionism and competition that would perpetuate the already conflictual nature of energy questions, thereby obstructing more forward-looking, cautious and peaceful efforts in the global transition. Moreover, Germany's geopolitical discourse on global hydrogen cooperation, which is explicitly referenced against the 'threat' posed by Russia, has long-term implications not only for German- and EU-Russian relations but for global efforts in energy-related matters and beyond, which are important to keep in mind. Spatializing the international system in juxtaposition to the 'oppressor' Russia might prove counterproductive in cooperating with international partners like the African region, whose economic ties and historical memories of Russia as an anti-colonial ally against the Europeans remain influential in determining international energy cooperation (Soy, 2023). While the atrocities the Kremlin is committing in its aggression against Ukraine undeniably demand and justify Germany's and the EU's political and economic disengagement from Russia, any future after the war will

necessarily require some form of relationship if to avoid new international polarization and conflict between rivalrous ideological 'blocs'.

Lastly, the government's discourse needs to be considered in light of its ramifications for the broader political 'hype' around hydrogen. As has been previously mentioned, high energy prices and overall supply insecurity in Germany that have resulted from Russia's war against Ukraine have fired-up the hydrogen debate to unprecedented levels among policymakers and lobbyists. Yet it might prove counterproductive to keep linking hydrogen with narratives around energy independence and security. There are two profound potential risks involved in this securitization of hydrogen: first of all, hydrogen is a long-term endeavor; it is not the 'silver bullet'. It will at minimum take until mid-decade for green hydrogen to be cost-competitive vis-á-vis fossil fuels, and available in the quantities needed for its wide-ranging application across industrial processes (Agora Energiewende, 2022). Though the government occasionally emphasized this long-term nature of hydrogen production and application, the discursive positioning of the issue in the context of national security might divert attention away from discussing crucial technical-economic dimensions of the energy transition, such as energy efficiency and electrification, which are already available and thus need to be prioritized *today* (Agora Energiewende, 2022). It can also inhibit a more critical debate about the actual emissions intensity of hydrogen production – the 'green' one included -, and how to define and regulate hydrogen imports in accordance with comprehensive and globally equitable emissions-reduction (IEA, 2023).

This, too, is particularly important to consider in light of Germany's exit from nuclear power. Alongside other EU member states, German industrial leaders, too, have been skeptical of the government's exit decision, fearing a supply shortage in electricity given the overall slow progress on renewables (Berbner, 2023). Hence, with newfound speed and pragmatism the government is realizing policies and implementing projects vital for Germany's energy security, such as the rapid construction of LNG terminals; fast and pragmatic policymaking that would be crucial for *climate* security, however, risks being deferred. A case in point is the weakening of the Climate Protection Law, under which the government recently abolished its sector targets for emissions reduction (Schlandt, 2023). This also reflects the broader diminishing support in German society for climate-driven politics, which are increasingly viewed as standing in opposition to concerns over economic welfare and security (Pausch & Ulrich, 2023). Framing hydrogen as a question of national security risks exacerbating these sentiments, thereby obstructing the development of a climate-driven energy policy framework in the name of a security-driven one.

This ties into the second risk: securitizing hydrogen can give further impetus to the (misleading) idea that it can be used for almost anything – including domestic households and individual transport, as German lobbyists have been pushing for (Kurmayer, 2023). However, the actual energy efficiency and added value of hydrogen is extremely dependent upon its application: while it will prove crucial in the decarbonization of energy-intensive industries, shipping and aviation, its usefulness and potential for decarbonization processes beyond that – for example in public transport or heating in the building sector – remains a highly contested issue among experts (Agora Energiewende, 2022). It is therefore crucial that the hydrogen discourse does not prevent giving political and economic priority to electrification, which remains the most important pillar on the way towards global climate neutrality. Last but not least, an exclusive focus on hydrogen might divert political and societal attention away from more structural changes necessary to tackle climate change, including agroecological food production, traffic reduction or energy-efficient architecture (Eberhardt, 2023).

5. Conclusions, Limitations and Future Trajectories

The power of discourse essentially resides in its productiveness; its central role in constituting and reproducing the 'reality' of international politics in accordance to actors' identity, beliefs and interests. This research aimed to shed light on this productive power by critically exploring and interrogating Germany's discourse on hydrogen, a central pillar of its foreign energy policy and diplomacy. The country's leading role in renewable energy promotion both at the domestic and European level throughout the past, and the 'identity crisis' Russia's war against Ukraine and the *Zeitenwende* have provoked in German foreign policy, made it particularly interesting and crucial to engage with the German hydrogen discourse against the broader backdrop of Europe's and the global green transition as a whole. By developing an analytical framework rooted in critical geopolitics and discourse theory, and applying it to the context of renewable energy, this research sought to make a novel contribution to the debate around the geopolitics of hydrogen from a critical theory perspective. Moreover, situating and contextualizing Germany's hydrogen discourse within EU renewable energy policy and international cooperation provided insights into the potential implications of this discourse for multilateral governance efforts.

The central theoretical assumption guiding this research stipulated that the prevalence of geopolitical discourse – that is, the extent to which hydrogen is securitized and geopoliticized – determines whether hydrogen-related interests are pursued through a competitive diplomacy, or through a cooperative governance framework. The analysis showed that the salience of

geopolitical and security interests in German hydrogen discourse since the onset of the war reflected a particular understanding of hydrogen in international energy politics; it discursively presented and reproduced the issue as one of supreme priority to German national security and welfare, thereby delimiting which specific policies and actions are considered necessary and legitimate for the government to pursue its hydrogen interests abroad. Most importantly, diverging from past narratives on market-driven openness and economic interdependence, the discourse promoted a more geostrategic focus on hydrogen partnerships based on their geopolitical meaning for German energy security.

The mobilization of geopolitical discourse on hydrogen thus revealed the degree to which the government became protective of its energy autonomy and independence against the backdrop of Russia's war against Ukraine, and how this emerging security logic influenced its approach to hydrogen as a strategic foreign policy issue. At the same time, however, notions around global cooperation, market openness and solidarity in fighting climate change – the *Energiewende* logic - supplemented this security logic; rather than fully subsuming the latter, the former served as a discursive 'balancing act' to the geopolitical discourse around hydrogen. As this author suggested, the coexistence of these narratives mirrors the more fundamental 'identity crisis' the war has invoked in German foreign policy; the government mobilized the language of geopolitics in its hydrogen narrative as a way to 'resolve' this crisis, weighing its traditional market-driven energy policy approach primarily centered around technical-economic and normative leadership in the global energy transition, with the more strategic pursue of energy relations in line with security and geopolitical interests.

Overall then, the findings reflect the extent to which Russia's war and the *Zeitenwende* have given political impetus to the hydrogen debate, not only in Germany but in Europe as a whole. At the same time, they demonstrate the tensions intrinsic to approaching renewables based on energy security concerns on the one hand, and from a climate change-driven policy perspective on the other. The energy transition will thus depend on Germany's ability to work towards its energy security without undermining climate security at the same time. That is, both the ability *and* credibility of the 'traffic light' coalition, specifically the Greens, in mobilizing resources and support for climate-centered policies with the same speed and pragmatism currently driving its energy security efforts. As this research aimed to show, the productive power of discourse is decisive here: it constitutes and shapes the way in which a political issue is perceived not only by international elites and policymakers but by society as a whole. The more geopolitical the discourse around hydrogen becomes, the more it promotes a competitive, national welfare- and security-centered energy policy framework that risks diverting attention,

resources and societal support away from more cooperative, equitable and ecologically ambitious efforts in the global fight against climate change.

In sum, Germany's hydrogen discourse is a potent political force in foreign policy; it can either shape cooperation or intensify competition in the green transition. Given its leading role in hydrogen diplomacy, Germany has the potential to drive the development of a hydrogen economy around the world, and can play an important role in the EU's efforts towards a more sustainable energy system. It should thus utilize its impact power and leadership status at the EU-level in order to promote a common hydrogen policy framework that carefully balances questions of supply security and energy efficiency against the backdrop of climate change. The degree of cooperation in this, however, depends on the extent to which security and geopolitical interests that fundamentally affect questions of sovereignty – and are thus incompatible with multilateralism – do not push climate-related concerns into the background; that is, those concerns that ultimately require multilateralism both at the European and the international level.

Last but not least, it is important to reflect on questions of validity, generalizability and some of the more general limitations to this research. First, the goal of this research was not to generalize findings for EU member states' hydrogen discourse and policy beyond the German case; rather, its aim was to provide a critical in-depth exploration and interpretation of this particular country's discourse since Russia's invasion of Ukraine, given Germany's significant role in EU renewable energy policy promotion, as well its dependency on Russian energy supplies. Put differently, in interpretivist research, findings "are not generalizable as descriptions of how things are, but as how a phenomenon can be seen or interpreted" (Talja, 1999, p. 472). The researcher's interpretations of German discourse thus reflect the specific circumstances, and the particular role and position of Germany in the broader context of this research, and are thus not applicable to that of other countries. Future research could examine other member states' discourse around renewables such as hydrogen to shed light on further con- and divergences between member states' energy interests and policy promotion, to enable a critical comparative analysis of EU-level energy governance.

Second, due to constraints in time and space throughout the research process, the primary data selected and operationalized in this research was limited to a number of publicly available political speeches and statements by the German Federal Government and its ministries. While it is not the objective in critical discourse analysis to examine a large corpus of data, it nevertheless can be valuable to expand the analysis in future research to additional, as well as other forms of texts such as spoken accounts or imagery, in order to further validate and compare findings. Similarly, since the researcher was interested in the specific *formation*

and *articulation* of German hydrogen discourse, she deliberately did not look at the *reception* of this discourse by foreign audiences. Nevertheless, it is important to acknowledge that discourse is never one-directional; it involves both a 'sender' and a 'receiver' of the narratives and stories. Future research should therefore fill this gap as a way to shed light not only on how 'reality' is discursively defined and narratively diffused by certain actors, but also on how it is received, understood and internalized by its audiences.

Third and perhaps most importantly, the hydrogen debate reflects an ongoing sociopolitical phenomenon subject to complex international dynamics, of which this research only depicted a limited snapshot in time between February 2022 and March 2023, following Russia's invasion of Ukraine. The evolving nature of the issue deems it necessary to engage in more substantive research that not only spans a larger period of time, but also examines the actual hydrogen-related policies being implemented in the future. Discourse is both language and practice; while this research made the conscious choice to focus on the linguistic side, future scholarship can complement findings by closely examining policies such as trade agreements and import strategies, thereby contributing to a more comprehensive understanding of hydrogen in foreign policy and diplomacy. Moreover, ethnographic research as well as quantitative studies could contribute to a more comprehensive, interdisciplinary mapping of the emerging geopolitics of hydrogen, and its socioeconomic and political repercussions for both importing and exporting countries.

Last but not least, readers should keep in mind that this research was informed by the researcher's own German identity, her assumptions and prior theorizing about the issue, which inevitably impacted the way the data was identified and interpreted.

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