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**Article:**

Afionis, S and Stringer, LC orcid.org/0000-0003-0017-1654 (2020) Fuelling friendships or driving divergence? Legitimacy, coherence, and negotiation in Brazilian perceptions of European and American biofuels governance. *Energy Research & Social Science*, 67. 101487. ISSN 2214-6296

<https://doi.org/10.1016/j.erss.2020.101487>

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# **Fuelling friendships or driving divergence? Legitimacy, coherence, and negotiation in Brazilian perceptions of European and American biofuels governance**

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## **Acknowledgements**

This research was funded by the European Community's Seventh Framework Programme (FP7/2007–2013) under Grant Agreement No. 251132. Funding was also obtained from the Sustainability Research Institute (SRI) of the University of Leeds and a 2015 Researcher Mobility Award from the University of Leeds. Finally, this research was also supported by a Philip Leverhulme Prize (2013). The second author is a Royal Society Wolfson Merit Award holder. We thank the anonymous reviewers, the journal's Editor, B.K. Sovacool, as well as James Van Alstine, for their helpful comments on earlier drafts.

# Fuelling friendships or driving divergence? Legitimacy, coherence, and negotiation in Brazilian perceptions of European and American biofuels governance

**Abstract:** Traditional global powers like the European Union and the United States are seeing the rise of emerging powers like Brazil as prospective cooperation partners. Examining how traditional powers are perceived by their emerging counterparts offers critical insights into the prerequisites for effective and durable partnerships. While the literature on external perceptions has expanded considerably, a comparative perspective on how emerging powers perceive the policies of the two transatlantic powers in issue-specific areas is lacking. We present a framework of explanatory variables (legitimacy, coherence and negotiating style) and apply it to interview data and the literature to unravel Brazil's relations on biofuels with the EU and US, including through trilateral partnerships with third countries. Our data show that while Brazil's partnership with the US has progressed, the one with the EU has struggled to advance. Our paper seeks to explain these differences using our framework, advance understanding on the external perceptions of the international role and collaborative posture of the EU and US, and provide policy insights for the fruitful conduct of partnerships.

**Keywords:** Biofuels; ethanol diplomacy; renewable energy; transport fuels; Renewable Energy Directive (RED); Renewable Fuel Standard (RFS)

## 1. Introduction

Brazil has a long tradition with bioethanol as a renewable energy source for transport. The country is the world's second largest bioethanol producer, as well as the world's largest bioethanol exporter. Brazil's intention has never been to emerge as the 'Saudi Arabia of ethanol' (BR-OTHER#1, 2014).<sup>1</sup> Rather, its primary objective since the early 2000s has been to foster a global biofuels market and substantially scale-up bioethanol's international deployment and trade. The prerequisite for biofuels to develop into a globally traded

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<sup>1</sup> For anonymity purposes, interviewees are referred to by randomly assigned identifiers: BR-POL (Brazilian policymakers), BR-IND (representatives from industry), BR-OTHER (representatives from academia or other organizations), EU-POL (EU policymakers) and USA-POL (US policymakers).

commodity is a market with a constellation of countries not only consuming, but also producing, biofuels [1,2].

Brazil has simultaneously fostered bilateral, trilateral and multilateral initiatives to incorporate third countries into its policies for biofuels expansion, and has signed bilateral Memoranda of Understanding (MOUs) on technical cooperation with more than seventy countries (BR-POL#5, 2014). Apart from targeting the important US and EU markets, Brazil has also focused extensively on African countries due to their vast tracts of land into which to expand biofuel production [2,3]. Trilateral cooperation or North-South-South partnerships involve a Northern partner teaming up with Brazil to pursue biofuels project(s) in a third (developing) country. Brazil further has multilateral agreements with institutions like the Economic Community of West African States (ECOWAS). It has also actively participated in fora like the Global Bioenergy Partnership (GBEP), the International Biofuels Forum (IBF) or the Biofuture Platform, which have sought to facilitate international cooperation by developing common technical standards on biofuels and ensuring their sustainable and viable global commoditization [4].

This paper focuses on Brazil's bilateral relations on biofuels with the US and EU, and its trilateral cooperation partnerships involving the aforementioned Northern countries. Brazil's cooperation with the US and EU on biofuels has been ongoing since at least the early 2000s and has had its highs and lows. Favretto et al. [3] found that while Brazil's cooperation with the US on biofuels advanced substantially during the Bush and Obama administrations, its partnership with the EU has been fraught with tensions. This contrast in the relationship between Brazil and the two transatlantic powers presents a useful opportunity for a comparative study on the perceptions of the EU and US among Brazilian policymakers in this issue-specific area of biofuels cooperation.

Studies of external perceptions and images of the two traditional powers first emerged at the beginning of the millennium and have since gained significant traction in academic and policy circles [5]. Such a line of study enhances our understanding of US and EU foreign policy and the manner in which their attempts to assume an even stronger and more versatile role in global affairs is being judged by external observers and members of the international community. In addition, perceptions of traditional actors by their emerging counterparts can be an important determining factor to the emergence of effective and durable partnerships [6].

Despite rapid development of this field of study, many authors have stressed the need to expand the analytical focus [5]. Attention has been primarily on high-profile arenas, like foreign and economic policy [7], while the academic literature has largely focused on perceptions of the EU and studied them in isolation. International actors, however, generally interact with an extensive and varied set of potential partners, indicating the necessity for a comparative perspective on how their policies are perceived with respect to those of other relevant actors [7]. At the same time, a clear need has been identified to move beyond descriptive studies towards developing frameworks through which to describe, theorise and interpret the factors shaping external perceptions [8].

In addition to targeting gaps in the literature on external perceptions, we also seek to fill a gap in the literature on biofuels policy and governance. As Bastos Lima and Gupta [9] note, international biofuel governance is limited, focusing less on reducing the negative externalities of biofuel usage and more on issues relating to the commoditisation of biofuels and the enhancement of international trade. In order to improve the sustainability of feedstock cultivation and biofuel production, various jurisdictions have adopted rules or regulations, such as sustainability standards, that seek to exert extraterritorial control, influencing conduct that occurs abroad [10,11]. The manner in which affected parties perceive and respond to such processes has received little attention in the literature, and forms a key part of our focus.

This paper targets these gaps, presenting a framework of explanatory factors that compares and contrasts Brazil's perceptions of the two transatlantic powers with respect to biofuels policy. By scrutinizing Brazilian perceptions of policy legitimacy and coherence, as well as negotiating style, we provide a deeper understanding of the drivers of its divergent experiences with the EU and US. We argue that different rationales as to what constitutes sustainable biofuels help explain Brazil's perceptions.

The remainder of this article is structured as follows. After section 2 on research design and methods, section 3 provides an overview of the existing literature on external perceptions of the two transatlantic powers. Section 4 outlines our theoretical framework, while section 5 focuses on bilateral and trilateral biofuels cooperation between Brazil, the two transatlantic powers and developing countries in the African and American continents. Section 6 relies on our analytical framework to compare Brazil's perceptions of EU and US behaviour in the policy area of biofuels. Finally, section 7 discusses the policy and academic relevance of our findings, not just for biofuels, but for other policy areas as well, like trade and energy.

## **2. Methods**

Our investigation into Brazil's perceptions of the biofuels policies of its two transatlantic partners proceeded in three stages. First, we collected and analysed relevant secondary data from government documents, published reports and scientific studies. The objective of our narrative literature review was to identify, evaluate and synthesize the relevant literature with a view to determine gaps in earlier research and come up with a suitable design, as well as appropriate data collection methods, for addressing them [12]. Scrutiny of the literature led us to identify a need for both empirical and theoretical contributions to scholarly knowledge. While we found limited research on Brazil's perceptions of the energy policies of third actors in general, we also identified a lack of explanatory frameworks to guide elite perceptions research (see section 4).

In the second stage, we collected evidence from interviews and personal communications with Brazilian, EU and US officials and other stakeholders that were involved in the management of a broad range of policy dossiers directly related to biofuels, ranging from agriculture and energy to trade and development. Initially, purposive sampling was employed to select interview subjects who we considered most likely to provide relevant information that addressed the objectives of our study [13]. Additional interview subjects were identified using snowball sampling, whereby each interviewee was asked to nominate other potentially eligible people who were knowledgeable about the topic under investigation [14]. Primary data were gathered through thirty-six semi-structured interviews carried out across Brazil (August-September 2014, September 2015 and September 2018), EU headquarters in Brussels (October 2011 and October 2013) and Africa (October 2013 and July 2014). Interviewees included individuals from Brazilian line ministries, the US embassy in Brasilia, the EU Delegation to Brazil, the European Commission in Brussels, EU Delegations to Kenya and Mozambique, and the Brazilian Delegation to Brussels (see Supplementary Material). Our data collection period spans a number of years, mainly because we wanted to include a temporal component in our analysis instead of just a “snapshot in time” approach. This was deemed important due to policy uncertainty being high while we were collecting data, as the EU, as well as the US to a lesser extent, had become bogged down in prolonged debates over amendments to their biofuels policies.

The third stage of the research involved transcribing and analysing audio recordings from the interviews. The interview transcripts generated from these recordings were assessed via thematic analysis [14]. In particular, and in order to organize our data into meaningful units, interview transcripts were coded for references to biofuels policy in general. Codes were then grouped into categories or themes, which were subsequently reviewed and scrutinised for relevance to the research question [15].

We were unable to review any literature in Portuguese due to our lack of knowledge of the language. In addition, we recognise that those who declined or did not respond to interview requests could have provided us with further important details and perspectives. Notwithstanding these limitations, our study adds new understanding to research into the prerequisites for the fruitful conduct of bilateral and multilateral partnerships.

### **3. Literature on external perceptions**

The literature has largely employed an analytical approach to discussing external perceptions based on comparing and contrasting what an actor ‘is’ (i.e. perceptions of its international identity and image), and what it ‘does’ (i.e. perceptions of its negotiating behaviour) (see e.g. [16]).

#### ***3.1. Perceptions of the United States***

Starting with what the US ‘is’, focus has been largely on the growing scepticism over its ability to maintain its leadership and superpower status. Although still perceived as a military colossus, its economic position behind China has fuelled a widely-held perception of the US as a great power in decline that will sooner or later cede supremacy to its Asian rival [17]. Brazil nevertheless stands alone in Latin America, believing otherwise. Surveys of public opinions on what the US ‘is’ have also explored multiple other parameters. Holsti [18] outlines diverse polls investigating respondents’ perceptions of whether or not the US is, *inter alia*, a technological powerhouse, a force for good, democratic, religious, arrogant, nationalistic and materialistic.

It is what the US *does* that most powerfully impacts how it is perceived abroad. Opinions have been primarily shaped in response to US conduct of its foreign and security policies, especially in the aftermath of the 2001 World Trade Centre attacks. Trade policy has also affected

perceptions of the US abroad, a topic that became the focus of renewed interest following President Trump's protectionist rhetoric and persistent criticism of the trade practices of major developing countries like China, India and Brazil [19]. A burgeoning literature has emerged on US involvement in World Trade Organization (WTO) negotiations or US bilateral trade undertakings (see e.g. [20]), but focus has primarily been on the dynamics of the negotiations. A perceptions lens on how the US is viewed by its negotiating counterparts is largely absent. In a comparison of EU and US negotiating behaviours in international trade and environmental negotiations, Elgström [21] and Chaban et al. [22] note that the EU enjoys a better image in the eyes of developing countries, whereas the US has been characterized as confrontational, less accommodating and less civilized. Similarly, in a study of transatlantic approaches to the conclusion of bilateral trade agreements with Mexico and Chile, Behrens and Janusch [23] highlighted perceptions of the EU's polite and cooperative style as being at odds with the competitive and rival style of the US. Other studies reveal the discontent of major developing countries (i.e. Brazil, India and China) with the traditionally US-dominated WTO decision-making structures from which they were largely excluded until the early 2000s [24]. Perceptions have also been affected by US agriculture tariffs and subsidies, which provoked bitter disputes with developing countries over decades, including on biofuels [25].

### ***3.2. Perceptions of the European Union***

The EU is widely considered a progressive international player, whose foreign policy is guided by universal norms and principles, like democracy, the rule of law, human rights and fundamental freedoms. It has been described as a civilian power, a soft power and a normative power, advancing its interests almost exclusively by non-military and 'soft' means. The EU has quickly capitalized on this image to present itself as a 'force for good' in world politics [26, p.113]. EU political elites often refer to the EU's foreign and security policies as genuinely 'ethical' [27, p.30].

Alignment of the way the EU represents itself and how the academic literature has mirrored that has created what Lucarelli and Fioramonti [28, p.3] call a ‘self-referential attitude’ in EU public debate. At the turn of the century, this was identified as a lacuna in the literature that merited critical scrutiny. Substantial research has since emerged, examining perceptions of the EU outside its borders, including whether or not the normative power thesis has external buy-in [29]. Similar to work on the US, the literature again focuses on what the EU ‘is’ and what it ‘does’.

Regarding what the EU ‘is’, a strand of studies has scrutinized perceptions of EU leadership and power in multilateral fora, especially in the context of the climate change regime (e.g. [30]). Another subset of studies has examined perceptions of the EU by various agents (media, public, elites and civil society) in different countries. Overall, dispositions towards the image of the EU in global affairs are positive. Irrespective of the country and agent, typical attributes associated with the EU include democracy and human rights, an agent of peace, a multilateral actor or a successful model of regional integration [5]. While the EU has been acknowledged as an economic powerhouse, perceptions of its capacities as a great player in the international community have been less emphatic, being largely viewed as a power in decline, including in Brazil [29,31].

Turning to what the EU ‘does’, scholars have viewed the EU as a Janus-faced actor, especially when it comes to economic/trade policy. Various studies have focused on its negotiating behaviour and policy posture. Elgström [21, p.962] reports, in the context of WTO negotiations, concurrent developing country perceptions of the EU as ‘considerate’ and ‘compassionate’, yet also ‘arrogant’, ‘patronising’ and ‘confrontational’. Negative perceptions have nevertheless become more dominant in the literature. Elgström [32], in the context of negotiations between the EU and the group of African, Caribbean and Pacific (ACP) countries for the conclusion of Economic Partnership Agreements in the late 2000s, highlights the latter’s overwhelmingly negative sentiments about the treatment received from the European Commission.

'Patronising', 'paternalistic', 'disrespectful', 'rude', 'intimidating' and 'harsh' were used to describe EU behaviour [32, p.143]. In particular, the EU is perceived as largely uncompromising, capitalizing on its structural might: 'there are no free lunches; we've cooked up a deal, take it or leave it' [33, p.34]. The EU is also often accused of insensitivity to ACP demands and interests, imposing its preferences without concern for its 'weaker' negotiating partners [34]. Brazilian policymakers have also flagged up EU insensitivity to counterpart demands in the context of its biofuels policy, which they view as undermining the country's potential for economic development and poverty reduction [35].

#### **4. Toward a framework for explanation**

The studies above, while shedding light on important external perceptions of the US and EU, have largely remained descriptive. Chaban and Magdalina [36] argue that the paucity of research on what shapes perceptions represents a knowledge gap, while Lucarelli [5] points to the need for more theorizing on the interrelationships between factors that influence perceptions. Only recently have there been attempts at explanation. However, these focus exclusively on the EU. For instance, Chaban and Magdalina [36] present a framework looking at EU-specific, location-specific and global factors shaping perceptions of EU importance among elites in third countries. Broadening the analytical lens, Keuleers [8] departs from analysis of elite perceptions of what the EU 'is' to focus instead on popular perceptions of EU international identity. We add to the literature by presenting a novel framework of explanatory variables (Table 1) to examine the factors that shape external perceptions of what actors (e.g. the EU) 'do' in the wider world. We then apply it to the case of bilateral and trilateral biofuels cooperation between Brazil, the two transatlantic powers and developing countries in the African and American continents. Our framework incorporates concerns around legitimacy, coherence and negotiating style. The manner in which lack of legitimacy and coherence can be a crucial cause for ineffective, malfunctioning and poorly coordinated policymaking has received extensive attention in the literature (see e.g. [37]). Negotiating style has received less

attention, although the work of Elgström (e.g. [21,32]), deserves special mention. Our framework synthesises and extends this body of work (e.g. [6,38]), highlighting the relevance of these variables in shaping external perceptions.

**Table 1**

Factors that shape external perceptions of the EU

Legitimacy	<ul style="list-style-type: none"> <li>▪ Input legitimacy</li> <li>▪ Output legitimacy</li> </ul>
Coherence	<ul style="list-style-type: none"> <li>▪ Horizontal coherence</li> <li>▪ Vertical coherence</li> <li>▪ Narrative coherence</li> <li>▪ Chronological coherence</li> <li>▪ Implementation coherence</li> </ul>
Negotiating style	<ul style="list-style-type: none"> <li>▪ Negotiating behaviour &amp; strategy</li> </ul>

Legitimacy refers to the acceptability of social and political order, with scholars differentiating between input and output legitimacy. Input legitimacy concerns the participatory quality of the decision-making process, including its transparency, participation and representation [39]. Output legitimacy concerns the problem-solving quality of the decision-making outputs and whether or not these are perceived as just, equitable and effective [40].

Coherence is defined as ‘the absence of contradictions between policies and positions, and between words and deeds’ [41, p.494]. Understanding how policies influence each other’s effectiveness has generated considerable interest internationally within both scholarly and policymaking communities [42]. Due to the EU’s *sui generis* nature, EU law and foreign policy in particular have been at the forefront of active debates around policy coherence, with a range of (overlapping) evaluation typologies being developed over time [6,38,43]. We consider five of the most prominent and novel types of coherence: horizontal, vertical, narrative, chronological, and implementation coherence.

Horizontal coherence refers to whether a policy is coherent with other sectoral policies operating at the same level. Vertical coherence involves coherence between policies at different spatial scales of governance. Narrative coherence refers to whether there are contradictions between words and deeds (e.g. with respect to the EU's normative discourse). Chronological coherence considers whether policy instruments and governance arrangements are stable and consistent over time. Implementation coherence concerns the translation of policy into practice through allocation of the requisite resources toward goal attainment.

Regarding negotiating style, the manner in which an actor presents itself to third parties can have a significant impact on shaping external perceptions. For any interaction to achieve mutually beneficial outcomes, international actors need to be aware of each other's interests and concerns, and willing to engage in mature, reliable and respectful dialogue [44]. According to Elgström [32], an actor's negotiating behaviour and strategy are among the main factors involved in the negotiation process actively shaping external perceptions. Openness for mutual learning, compromise-building qualities and interest in the negotiating partner largely determine whether external partners will perceive e.g. the US or EU in a positive or negative light. Bringing these aspects together with others in our framework allows us to place Brazilian perceptions of the two transatlantic powers under a more critical, multi-variate lens, providing more comprehensive analysis than exists in the literature.

## **5. Brazil's ethanol diplomacy**

### ***5.1 Brazil's cooperation with the United States***

Bilateral relations between Brazil and the US were significantly strengthened during the Bush and Obama administrations. In March 2007, a MOU was signed on biofuels cooperation, being extended in 2011 to include aviation biofuels. Various Research and Development (R&D)

cooperation undertakings have been subsequently initiated, focusing e.g. on maximizing the efficiency of flex-fuel vehicle engines or facilitating the commercial-scale development and deployment of aviation biofuels (USA-POL#2, 2015). The two partners are particularly active in the latter area, as evidenced by significant US investment flows into Brazil in recent years [3]. Indicative of the positive bilateral relationship is the 2011 decision by the US to satisfy a long-standing Brazilian demand and eliminate the 54-cents-per-gallon import tariff the US used to impose on ethanol imports. This measure had been initially put in place to shelter ethanol distilled from corn in the US from the cheaper ethanol distilled from sugarcane in Brazil (BR-OTHER#1, 2014).

Bilateral relations are currently driven by the US Renewable Fuel Standard (RFS) program, a national policy requiring that a proportion of petroleum transportation fuels be replaced by renewable fuels. The RFS designates as ‘advanced’ those biofuels that reduce lifecycle greenhouse gas emissions by at least 50 percent compared to fossil fuels. Brazilian sugarcane ethanol qualifies, as the US Environmental Protection Agency (EPA) has determined it to reduce greenhouse gases by 61 percent. In 2007, the amended RFS set a consumption mandate for advanced biofuels ranging between 0.6 billion gallons in 2009 and 21 billion gallons in 2022 [45]. However, more recent EPA decisions to significantly reduce target volumes for advanced biofuels below congressionally mandated levels (citing supply and other considerations) have caused disappointment in official Brazilian circles (BR-IND#5, 2015; BR-IND#6, 2015; BR-POL#12, 2018).

Turning to trilateral undertakings, under Brazil’s MOU with the US, a subset of activities was directed to stimulate private sector biofuels investment in third countries. The US and Brazil have so far cooperated with nine countries: seven in Central America and the Caribbean (Saint Kitts and Nevis, Guatemala, El Salvador, Honduras, Haiti, the Dominican Republic and Jamaica), and two in Africa (Senegal and Guinea-Bissau). Technical assistance aimed to strengthen policy frameworks, implement blending laws and develop domestic biofuels

production capabilities (BR-POL#5, 2014; BR-POL#8, 2015; USA-POL#1, 2014). Several pilot projects were carried out in some participating countries, with Honduras, for example, inaugurating its first ethanol pilot plant in July 2014.

### ***5.2 Brazil's cooperation with the European Union***

The current legal and political framework for EU bilateral relations with Brazil is the Strategic Partnership agreement, established in 2007 at the initiative of the EU Portuguese Presidency. Becoming an EU strategic partner entails boosting a foreign country's diplomatic status by organizing summits, plus a plethora of ministerial- and expert-level meetings on a wide range of policy issues. Bilateral cooperation between the EU and Brazil focuses in particular on trade, science/technology, renewable energy and the environment [35]. With respect to renewable energy in particular, Brazil emerged as a key EU partner in this policy area following the adoption by the latter of a number of directives relating to biofuels during the 2000s, including the 2009 Renewable Energy Directive (RED) which requires Member States to reach a mandatory 10 percent biofuels target by 2020. However, a number of issues have since emerged that have polarized relations between the two actors (EU-POL#6, 2014).

From the outset, bilateral cooperation was hampered by Brazil's displeasure with the EU's subsidies for agricultural products and tariff barriers on biofuels, which have greatly impeded commercial integration between the two markets. Such trade barriers produced an image of the EU in Brazil as an actor relying on 'green protectionism' to shield its domestic industries and agricultural sector from foreign competition [35].

Another battleground emerged following the development of EU-wide standards and certification criteria in the RED to foster a more sustainable biofuels industry. Indirect land-use

change (iLUC<sup>2</sup>) and food security are particularly contentious. To (partially) address these sustainability concerns, the EU amended the RED in 2015 and set a 7 percent cap on food-crop biofuels. This furthered tensions with Brazil, which has argued that such a blanket approach discriminates against all food-based biofuels irrespective of the sustainability credentials of some, like e.g. its sugarcane ethanol [46].

With respect to trilateral cooperation, at the third EU-Brazil Summit in Stockholm in 2009, the two partners decided to work together to promote bioenergy and ethanol production in Africa. Kenya and Mozambique would serve as pilot countries (BR-POL#12, 2018; EU-POL#3, 2013; EU-POL#4, 2013). However, in both cases trilateral cooperation never got off the ground as shortly afterwards biofuels became embroiled in ‘one of the most highly contentious debates on the current international sustainability agenda’ [35, p.56]. With biofuels facing increasing scientific controversy, the EU effectively abandoned the trilateral undertakings in Africa [1,47].

## **6. Brazilian perceptions towards the US and EU**

This section employs the framework outlined in Section 4, shedding light on the factors affecting Brazil’s perceptions of the US and EU, providing a comparative perspective currently missing from the literature.

### **6.1. Legitimacy**

Starting with input legitimacy, Brazilian perceptions are primarily formed based on whether or not the two transatlantic actors endorse openness and transparency. In this respect, the US was often presented more favourably compared to the EU. For example, transparency

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<sup>2</sup> If a farmer grows biofuel feedstock on previously uncultivated land, this causes direct land use change (dLUC). If (s)he uses existing agricultural land, the crop that was previously cultivated there will now be displaced and will have to be moved elsewhere, e.g. to forest land, thus causing iLUC in the process.

prompted Brazil to support processes that culminated in similar regulations being promulgated in federal and Californian legislation, despite iLUC values for sugarcane in the latter being less favourable in comparison. Yet, Brazilians commented favourably on the US legislative approach, which allowed Brazilian scientists to freely access, review and comment on the models and input calculations (BR-IND#2, 2013; BR-IND#6, 2015). As a Brazilian interviewee noted, we were at least certain that ‘the best science available’ had been employed (BR-IND#2, 2013). Another interviewee concurred, noting that unlike the Europeans ‘the Americans were very open and wanted to understand Brazilian arguments’ (BR-IND#6, 2015).

In contrast, the EU was perceived as being overly bureaucratic and not particularly open. As one interviewee noted, its regulatory processes are overly opaque, and it is very ‘difficult to get through all the red tape and bureaucracy’ (BR-IND#6, 2015). Brazilian policy-makers often do not know whom to contact when issues arise, and lack explanations of the rationale behind decisions on biofuels that affect them (BR-POL#2, 2013; also BR-POL#5, 2014). For instance, when the Brazilian embassy in Kenya enquired about progress on the trilateral project, it was suggested their headquarters speak directly with Brussels, which resulted in an inconclusive reply of ‘we are looking into it’ (EU-POL#4, 2013). In another example, the European Commission released in October 2013 its proposed amendments to the 2009 Renewable Energy Directive (RED), which included estimated values on iLUC emissions from biofuel and bioliquid feedstocks (see [48]). The value for sugars was 13 gCO<sub>2</sub>eq/MJ, to which the Brazilians argued: ‘why 13 grams for ethanol? It is much better!’ (BR-POL#2, 2013). Consequently, when the Commission released in November 2016 its proposals for the next edition of the RED, Brazil noted that as far as iLUC was concerned, the EU’s new rules should ‘include periodic updates of the underlying numbers, clearly describe the methodology (type of model, hypothesis and data source) and submit it to public consultation’ [49]. Overall, irritation was repeatedly expressed at the constant insertion of new elements into the RED without prior consultation with affected parties, especially at a time Brazil was seeking to generate growth and jobs (BR-POL#2, 2013).

Regarding output legitimacy, judgments of policy fairness and effectiveness, especially when trade access is at stake, were found to play an integral role in relation to how Brazil's perceptions of traditional actors are formulated. Regarding biofuels, the US, in contrast to the EU, fares much better when it comes to tariff design and the promulgation of sustainability standards. Historically, biofuels cooperation with Brazil had been hampered by the \$54-cents/gallon tariff imposed by the US for more than three decades on the bulk of foreign direct ethanol imports [50].<sup>3</sup> Yet, bilateral dialogue on this topic according to the Brazilians has been 'open and clear', with US authorities being frank about the protectionist rationale behind the tariff and reassuring their counterparts that it would be allowed to expire, which it did in December 2011 (USA-POL#1, 2014 and BR-POL#5, 2014).

While US legislation requires biofuel producers to comply with several sustainability targets, these were not perceived by Brazilians as non-tariff barriers. This was largely because the new US Renewable Fuel Standard (RFS2) designated sugarcane ethanol as an advanced biofuel with high mitigation potential from the outset, thereby relieving Brazil of responsibility to undertake certification. Interviewees commented favourably on the fairness and mitigation effectiveness of this US decision, with several viewing it as Brazil's greatest achievement in its bilateral relations with the US (BR-POL#8, 2015; BR-POL#9, 2015 and BR-POL#10, 2015). They nevertheless expressed concern about US protectionist tendencies, especially under President Trump's administration, fuelled largely by hostility of the US oil and corn ethanol lobbies toward Brazilian sugarcane ethanol (BR-POL#13, 2018; BR-POL#14, 2018).

Turning to the EU, while the 2007 strategic partnership 'revolutionized' bilateral relations overall, biofuels struggled to keep up, with Brazil quick to note many flaws and contradictions

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<sup>3</sup> This is \$0.14 per litre. It was cancelled in 2011 due, *inter alia*, to high petroleum prices, record US ethanol production, the need to reduce federal tax expenditures, as well as reduced Brazilian ethanol production, which had greatly alleviated US competitiveness concerns.

in the EU's policy stance (BR-POL#1, 2011). Europe is largely perceived to have obvious double standards. The EU is vocal in its commitment to free trade and the market economy; its rhetoric based on the assumption that such arrangements will benefit the poorer periphery [35]. Yet, the EU maintains a range of high tariff and non-tariff barriers for those agricultural products where Brazil has its greatest competitive advantage, e.g. sugar, meat and cereals.<sup>4</sup> Such protectionism is perceived as hypocritical, as it distorts international competition at the expense of the developing world (BR-POL#2, 2013; BR-POL#8, 2015).

With respect to sustainability standards, in 2015, largely to (partially) address both iLUC and food security concerns, the EU amended the RED and set a 7 percent cap on food-crop biofuels, and encouraged Member States to individually establish indicative targets for second-generation biofuels [51]. Brazil again dismissed this approach as unfair and ineffective, on the grounds that it put all commercially available biofuels into the same basket and failed to factor in their widely different iLUC impacts (e.g. when comparing biodiesel with bioethanol) [BR-IND#6, 2015]. Similarly, in November 2016 when the Commission proposed to cut the use of food-based biofuels from the current 7 percent to 3.8 percent by 2030 and phase them out altogether afterwards, Brazil again expressed concerns about the proposal's equity and cost-effectiveness, noting that the 'cheapest solution – sugarcane ethanol – [was] consequently being marginalized' [52].

## 6.2. Coherence

Starting with US horizontal coherence, interviewees overall painted a positive picture, viewing policy convergence as more common than divergence. Brazilian policymakers rarely encounter 'any kinds of misunderstandings, misconceptions or divergence' (BR-POL#11,

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<sup>4</sup> According to the WTO, tariff bindings differ depending on whether a product is classified as an agricultural or an industrial good. Whereas ethanol is considered an agricultural product, biodiesel is regarded as industrial, as products are classified based on their chemical composition and not on their potential use.

2018). While the US Department of Agriculture is perceived as having a greater interest in corn-based biofuels and the Department of Energy a greater focus on advanced biofuels and technological development, their policies were generally considered complementary (BR-POL#12, 2018). Furthermore, the various departments and agencies of national government generally avoided interfering with the EPA's administration of the RFS, thereby enhancing policy coherence in the view of Brazilian policymakers (BR-POL#11, 2018).

Achieving horizontal coherence in the EU is inherently more challenging due to its far richer constellation of internal actors. A distinction is usually made in the literature between inter-pillar and intra-pillar EU coherence.<sup>5</sup> The former entails the smooth coordination between the supranational and the intergovernmental pillars of EU external action and hence the absence of contradictions in the policies pursued by the main parts of the EU machinery governing them, i.e. the Commission and the Council. With respect to biofuels policy, interviewees pointed to the widely different positions of the Commission and Council, and the subsequent need for them to concurrently lobby the Commission, as well as the Member States (e.g. BR-POL#12, 2018). They noted the diverging positions of the two institutions during negotiations on which types of biofuels – and in what proportion – would be available on the EU market from 2021-2030. While in 2016 the Commission proposed abandoning the 10 percent renewable energy target in transport and limiting crop-based biofuels in Europe's transport energy mix to 3.8 percent, the compromise between the EU's institutions set a target of 14 percent renewables in transport by 2030, effectively retaining the 7 percent cap agreed in 2015.<sup>6</sup>

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<sup>5</sup> Some authors (e.g. [43]) consider horizontal coherence to refer only to inter-pillar coherence. However, we view inter-pillar and intra-pillar coherence as two clearly differentiated sub-categories of horizontal coherence.

<sup>6</sup> The agreement also notes that biofuels with a high risk of iLUC will be freezed at 2019 levels and gradually phased out from 2023 towards 2030.

Intra-pillar coherence considers the extent to which the policies of different actors within the same organisation – for instance two Directorates-General (DGs) of the Commission – follow the same principles, values and aims. Prior to adoption of the revised EU RED in 2015, there was a perception among Brazilian interviewees that the EU used its leverage as a donor to turn African countries against biofuels (BR-POL#10, 2015 and BR-IND#6, 2015). Brazilian interviewees in Brussels argued that DG DEVCO, the provider of funds for development cooperation, was blocking undertakings in Africa involving biofuels on sustainability grounds (BR-IND#2, 2013; BR-POL#2, 2013). This was deemed confusing, as other DGs, like Research and Innovation, were engaged in biofuels cooperation with Brazil on other fronts. Consequently, there was a call for the EU Commission to work on its internal consistency (BR-POL#2, 2013). Brazilian policy-makers argue that ensuring the sustainable utilization of biofuels in the continent is key for them too and that there are areas in Africa with suitable conditions for implementation of a modern, sustainable and diverse agro-energy system.<sup>7</sup> Brazilians lamented the ‘lost opportunity’ of combining European and Brazilian capacities to benefit Africa, but noted that if the EU is not interested then ‘we (Brazil) are going on our own’ (BR-POL#2, 2013).

Moving on to vertical coherence in the US, Brazilian policymakers expressed satisfaction with low carbon fuel policies at both federal and state levels. In addition to RFS2, the most important state level initiative is California’s Low Carbon Fuel Standard (LCFS). While the LCFS is more ambitious and differs from the federal RFS2 in important ways, interviewees perceived them as ‘heading in the same direction’ (BR-POL#12, 2018). California, for instance, has also recognized Brazilian sugarcane ethanol as a low-carbon fuel, incentivising Brazilian mills to make investments and expand production to supply sugarcane ethanol to the US market. Concerns, however, were expressed that the Trump administration’s isolationist agenda could undermine and derail the RFS, exerting a negative effect on vertical coherence

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<sup>7</sup> See [1] for a contrasting opinion.

due to California's stated determination to push forward with its progressive climate policies (BR-POL#11, 2018; BR-POL#12, 2018; BR-POL#13, 2018; BR-POL#14, 2018).

With respect to the EU, interviewees commented that during the negotiations leading to the revised EU RED in 2015, positions of the Commission and the Member States were polarised. While the Commission was in favour of strong legislation to address emissions from iLUC, there were several groups of Member States with very different positions. Progressive Member States, like the UK, the Netherlands, Denmark and Belgium, sided with the Commission, demanding immediate action on iLUC. Member States with strong farming lobbies, such as France, Spain, Poland and Portugal, opposed any significant limitations on crop-based biofuels. Brazilian interviewees commented on the confusion generated when interacting with Member States whose ministries held conflicting positions on biofuels, as was the case, for example, with Germany (BR-POL#9, 2015).

Turning to narrative coherence, Brazilian interviewees did not report any contradictions in the case of the US, acknowledging that the federal government consistently maintained that the primary objectives behind biofuels policy were energy security and rural income generation, with sustainability a less central consideration, especially given the poor energy efficiency properties of US corn-based biofuels (BR-POL#5, 2014; BR-POL#13, 2018). Contrastingly, Brazilian interviewees appeared perplexed by the EU's stance.<sup>8</sup> They asked: if the EU is genuinely concerned about the sustainability of biofuels and is consequently sceptical about their implications for African countries, why does it have in place a range of tariff and non-tariff barriers the sole aim of which is to protect Europe's uneconomical and energy inefficient rapeseed-based domestic biofuels production? (BR-POL#2, 2013). They consequently judged the EU's normative discourse as masking interest-driven positions. Here, the Common Agricultural Policy (CAP) has a particularly negative influence, while EU biofuel-related

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<sup>8</sup> See also [31] on Brazil's perceptions of the EU as an energy actor.

measures to protect the environment have also been consistently met with suspicion.<sup>9</sup> The latter in particular are readily dismissed as veiled EU attempts to shield domestic production against cheap ethanol imports, mainly from Brazil (BR-POL#7, 2014; also BR-IND#1, 2013; BR-POL#2, 2013; BR-IND#2, 2013; BR-POL#4, 2014; BR-POL#11, 2018). Such compliance rules are even perceived as an attempt to raise non-tariff barriers, overcoming which would require establishment of a specialized consultancy and services sector, for which the relevant capacity only exists in developed countries (BR-POL#2, 2013).

When it comes to chronological coherence, perceptions once again diverged. In the case of the US, interviewees were optimistic regarding US long-term commitment to policy continuity. As one interviewee noted, ‘we feel secure about US decisions as we never had any surprises. The rule (i.e. the RFS) is there, is going to prevail [and] is not going to change’ (BR-POL#11, 2018). While positive overall, problems have clouded bilateral ties, especially when it comes to US consumption of advanced biofuels, which has progressively, but slowly, increased but failed markedly to meet the mandated RFS targets (BR-IND#6, 2015). For example, while the statute specified a 9 billion gallons requirement for 2017, the EPA only recommended the purchase or production of 4 billion gallons of advanced biofuels for that year [53]. The EPA further noted that its recommendation was based on the assumption that external sources would be unable to supply the volumes necessary for meeting the statutory requirement. Brazil, for instance, was deemed by the EPA as being in no position to export more than 200 million gallons of sugarcane ethanol into the US [53]. Brazil strongly contested the EPA’s decision to lower the statutory volume, arguing that it inhibits market growth and discourages investments in the Brazilian sugarcane sector. According to the Brazilian Sugarcane Industry Association (UNICA), domestic producers have the capacity to export higher volumes of advanced ethanol into the US, but only under the right market conditions and only if regulations are adhered to over time [54].

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<sup>9</sup> Reference here is made to the sustainability criteria of the 2009 RED.

Changing the rules shortly after they have been promulgated affects relations between Brazil and the EU as well. Only a couple of years after setting a 7 percent cap on first-generation biofuels, the Commission proposed (unsuccessfully) to cut the use of food-based biofuels to 3.8 percent by 2030 [55]. Brazil on both occasions argued that reducing the cap would not only diminish the sector in Europe, but also send a negative signal that the EU is not a reliable destination for investments (BR-POL#14, 2018). Continuously amending regulatory frameworks, often adopted after very lengthy and detailed discussions, was viewed as causing market and investor uncertainty (BR-POL#6, 2014; also BR-IND#6, 2015). As one interviewee noted, ‘it is difficult to know what is coming next’ (BR-POL#11, 2018).

With respect to implementation coherence, Brazilian perceptions of the US and EU are widely heterogeneous. The US is perceived as a proactive and pragmatic actor that has clear goals and implementing tools (BR-OTHER#3, 2015). As noted by one interviewee, the US ‘is more proactive, we see a clear intention to go to the next step: implementation’ (BR-POL#6, 2014; also BR-IND#6, 2015). According to the Brazilians, the two countries shared ‘similar views on biofuels and the industry’ and did not have to ‘fight for the concept’, as was the case with the Europeans (BR-POL#5, 2014). When problems emerged, like iLUC or food security, the two partners would not put cooperation undertakings on hold, but instead deliberate the issue, aiming to ‘tackle it, minimize it, adapt it’ (BR-POL#2, 2013). That various countries in Africa, Central America and the Caribbean were already producing biofuels and had promulgated biofuels mandates was presented as an indication of the success enjoyed by US-Brazil trilateral cooperation ventures (BR-POL#5, 2014; also USA-POL#1, 2014). Concerning Brazilian perceptions of the EU, there was again consensus, but this time on the difficulties faced by Brazilian policy-makers when trying to interact and cooperate with their European counterparts. Meetings were perceived as repetitive and that: ‘we talk, we talk, but we don’t go for concrete actions’ (BR-POL#6, 2014; also BR-POL#8, 2015).

### **6.3. Negotiating style**

Compared to the EU, the US was considered less confrontational, flexible and more compromising, being more willing to listen and ‘understand Brazil’s demands’ (BR-IND#6, 2015; also BR-POL#8, 2015; BR-POL#9, 2015; BR-POL#10, 2015). Furthermore, ‘the US’, in the words of another interviewee, ‘is more concrete or frank; they are ready to say what they think and what they are ready to collaborate on’ (BR-POL#12, 2018). In contrast, the EU’s non-transparent attitude and insistence on regulating extraterritorially without full and proper consultation with affected parties was perceived as depreciating, with Brazilians arguing that: ‘we do not want to be dictated. A real partnership is about exchanging’ (BR-POL#2, 2013). The EU was perceived as showing little interest in Brazil’s arguments, needs and requests (BR-POL#10, 2015) and to adopt a typical patronizing attitude in that ‘only developed countries know how things are done and they could teach you’ (BR-IND#2, 2013; also BR-POL#11, 2018).

These findings are consistent with other studies. Dimitrovova [56] noted perceptions of the EU only granting access to its internal market to those willing to cooperate and accept its conditions and preferences. Chaban et al. [44] also report perceptions of the EU as an actor firmly entrenched in its positions that focuses only on its own interests without listening to its partners or appreciating their concerns. EU unwillingness to compromise on biofuels was attributed to the fact that it approached bilateral negotiations on this policy area as a political, instead of a technical dialogue. One interviewee argued, ‘when we approach an issue from a technical side we can demonstrate that allegations are not true, especially when it comes to Brazilian ethanol (BR-POL#9, 2015).

## **7. Discussion**

Since the early 2000s, there has been remarkable growth in research on external perceptions of the EU, as well as of the US, albeit to a lesser extent. Yet, our review of the literature led us to stress the need for further empirical and theoretical contributions to scholarly knowledge. Our analysis has moved beyond the current near-exclusive focus on the EU, adopting a comparative perspective. Bringing the US into the equation, our findings support the argument that external perceptions are “issue specific, multi-layered and differentiated” [6, p.29]. As section 3 highlighted, perceptions of the EU and US by developing countries can be concurrently positive or negative, influenced by their international identity and image, as well as by their actions in the real world. A small but persistent thread in the literature suggests that negative perceptions predominate in the issue area of trade. Nevertheless, as our findings demonstrate, there can be variations in policymakers’ perceptions even within issue areas. Biofuels are generally considered best viewed as a trade matter. Yet, Brazil has contrasting perceptions with respect to the actions of the EU and US in this policy area.

Turning to our theoretical contribution, we developed and applied a framework that comprised three sets of factors to compare the perceptions of the EU and US among Brazilian policymakers in the issue-specific area of biofuels cooperation. Findings demonstrated that Brazil’s positive recent cooperation experiences with the US have generated trust, goodwill and openness, while its negative experiences with the EU have led to reduced influence, mistrust and resentment. Investigation of perceptions with respect to legitimacy, coherence and negotiating style identified protectionism, transparency, bureaucracy and lack of respect as among the main factors shaping these perceptions.

On legitimacy, our observations yield important findings that deserve further scrutiny, especially from the EU policymaking community. For its biofuels policies to pass the legitimacy test and gain the acceptance of its external partners, the EU would need to reflect on why its adherence to principles of good governance, like transparency and participation, among others, comes under doubt. With respect to most types of coherence, our findings were largely

anticipated, given the EU is a unique political construct. It is bound to face a unique set of problems when promulgating policies that are EU-specific and not found in sovereign states [57.] When it comes to negotiating style, our results mirror the mixed picture in the literature, underscoring that external perceptions in this area tend to be case-specific and context-dependent.

Our study offered a framework for moving beyond description to understanding the factors or causes shaping Brazil's perceptions. These causes, however, could be viewed as immediate, necessitating the need to dive deeper and look for the fundamental driving forces that underpin the more proximate causes of Brazil's divergent perceptions of the two transatlantic actors when it comes to biofuels governance. Such forces can often be structural (or systemic) in nature.

Perhaps the answer could lie in the widely agreed-upon adoption by the EU of a more precautionary stance in terms of domestic regulatory politics compared to the US. Following this line of reasoning, the EU appears to be unfair, uncompromising, bureaucratic or protectionist, one could argue, because, in contrast to the US, it has to perform the much heavier task of ensuring that its biofuels policies are underpinned by the precautionary principle, whilst concurrently convincing outsiders of the sincerity of its intentions.

The precautionary principle thesis nevertheless has two problems. First, caution and scepticism are required when interpreting such rhetoric on precaution. While there are areas in which the EU has adopted a more precautionary stance (e.g. climate change, air toxic substances or genetically modified organisms), there are others in which the US has outpaced the EU (e.g. particulate air pollution, nuclear energy or ozone-depleting substances). Based on longitudinal analysis of nearly 100 risks, Wiener et al. [58] note that over the past four decades neither actor can claim to have been more precautionary across the board.

Second, and specifically on biofuels, while interaction with the scientific community helped inform EU decision-making, questions remain on whether the precautionary principle was applied according to best practice standards. The initiation of internal negotiations to amend the 2009 RED – in the immediate aftermath of its adoption – represent recognition on the part of EU authorities that the considerable degree of scientific uncertainty with respect to the environmental and social sustainability of biofuels (e.g. regarding iLUC and food security) was not adequately factored into the final policy decision. Sharman and Holmes [59, p.318] argue that the EU had been engaging in ‘cherry-picking of evidence’ to gather support for an already pre-determined policy choice.

An alternative thesis to the precautionary principle argument is that the divergent logics surrounding the role biofuels are expected to play in the EU and US could more convincingly explain Brazilian perceptions (see e.g. [31]). Whereas climate change, energy security and rural development are seen by the EU as drivers of biofuels development, the US administration’s predominant interest in biofuels is for energy security. Climate change mitigation is of secondary interest, especially given the poor energy efficiency of US corn-based biofuels [60]. This explains the ease with which Brazilians can interact with their US counterparts, and why they share similar views on biofuels and the industry. Fewer complicating factors can derail their bilateral biofuels relations. For the EU, the need to pursue objectives other than those directly linked to climate mitigation leadership culminated in policy confusion. Combining trade, energy, economic, rural development and other motivations resulted in inadequate treatment of the climate pillar. Subsequent attempts to rectify the situation by promulgating amendments to deal with iLUC and food insecurity concerns only led to EU infighting and dragging negotiations, which, in essence, nullified conventional biofuels as a long-term EU renewable energy option. Policy interaction with a counterpart fraught with internal dissent and incoherence is undoubtedly cumbersome. The EU’s inability to radiate a clear vision with respect to biofuels is a key driver of Brazil’s negative perceptions.

Our findings are of wider relevance than to biofuels governance alone. They also serve to highlight the divergence in trade preferences between Brazil and its transatlantic partners. Following decades of a generally deferential foreign policy toward the US, since the turn of the century Brasilia has sought to distance itself from Washington and put its own stamp on a number of issues, with trade being prominent among them [24]. For decades, the US has been examining the possibility of free trade agreements with Brazil or the South American customs bloc Mercosur, albeit with limited success. Improved market access for sugar and ethanol have been among the most challenging areas to tackle [61]. The importance of these products for Brazil cannot be overestimated. Its sugarcane industry is highly competitive and employment-generating, with Brazil having invested heavily in technological development of its bio-economy [62,63]. Similarly, the EU's reluctance over the past two decades to make concessions in these areas caused Brazilian policymakers to dismiss its proposals as unfair and protectionist, as well as displaying unwillingness to compromise and insensitivity to the development aspirations of developing countries: 'The EU cannot have its sugar-coated cake and eat it too' [64].

Our interview data spans the best part of a decade and shows that Brazil's perceptions of the EU and US remained relatively constant during the period under study. It is important to stress, however, the potential volatility of perceptions and the multitude of factors influencing them. As far as the EU is concerned, its conclusion in June 2019 of a trade pact with Mercosur ensures greater market access for Brazilian ethanol through a partial liberalisation mechanism, called tariff rate quotas (TRQs). Under these TRQs, Mercosur countries can export at a reduced tariff up to a pre-agreed volume [65]. Heralded as an historic agreement in Brasilia, this pact is bound to have a positive influence on its perceptions of EU biofuels policies. In the case of the US, however, President Trump's willingness to enact more protectionist trade measures could disrupt its generally harmonious relationship with Brazil on biofuels, although with the change in Brazil's leadership in 2018, new dynamics may emerge.

## **8. Conclusion and Policy Implications**

This paper has proposed and applied a novel framework of explanatory variables for the study of elite external perceptions and images of the two traditional global powers. The framework is applicable over a wide range of policy areas, from foreign and economic affairs to trade and energy. Applying our framework to analyse interview data and literature on external perceptions elucidated a comparative picture of Brazil's perceptions on biofuels cooperation with two of its transatlantic partners. Findings suggested that the US enjoys a far better image in Brasilia than its European counterpart, including through trilateral partnerships with third countries.

Afionis and Stringer [4] point to the policy implications of such contrasting perceptions. For example, US public and private actors have been far more active in Brazil in the area of advanced biofuels compared to their EU counterparts. As biofuels will remain prominent, the danger of the EU lagging behind the US and Brazil in developing the second-generation biofuels market requires urgent remedial action. For the EU to achieve its biofuels goals and effectively cooperate with Brazil on knowledge exchange and bioethanol technological development, success hinges both on the substantive merit of its policies, and how these policies are perceived abroad. Only if sources of dissonance are adequately identified and addressed can policy gaps be bridged and cooperation rest on solid foundations. Again, our findings with respect to the EU are of wider relevance in terms of policy outcomes than to biofuels governance alone. For instance, it has been observed in the literature that in many countries and contexts the EU's normative arguments are contested and viewed with suspicion (see e.g. [29]). With respect to energy governance and the manner in which the EU's norms in this context are perceived by emerging powers such as India and China, Chaban et al. [44] note that the EU's Eurocentric approach of "talking at" instead of "talking with" its partners stands in the way of inclusive and collaborative energy diplomacy conduct. Such cases serve to illustrate that external perceptions of EU legitimacy, coherence and

negotiating style, as well as the local resonance of EU norms, are paramount for the successful pursuit of normative foreign policy goals. Efforts to manage external perceptions can therefore function as an avenue through which the EU can enhance its image in the eyes of developing country partners and reconcile perceptions of what it ‘is’ with perceptions of what it ‘does’.

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# **SUPPLEMENTARY MATERIAL**

## **A. List of Interviews**

List of Interviews			
Date	City	Mode	Actor
October 2011	Brussels	FtF*	Brazilian Delegation to the EU
April 2013	Brussels	FtF	UNICA (Brazilian Sugarcane Industry Association)
September 2013		Telephone	DG Trade
September 2013	Brussels	FtF	Brazilian Delegation to the EU
October 2013	Brussels	FtF	DG Energy
October 2013	Brussels	FtF	UNICA (Brazilian Sugarcane Industry Association)
October 2013		Telephone	European Union Delegation to Mozambique
October 2013		Telephone	European Union Delegation to Kenya
July 2014	Dar es Salaam	FtF	Embassy of Brazil to Tanzania
August 2014	São Paulo	FtF	University of São Paulo
August 2014	São Paulo	FtF	Getúlio Vargas Foundation (FGV)
August 2014	Rio de Janeiro	FtF	BNDES
September 2014	Brasilia	FtF	Brazilian Ministry of Agriculture
September 2014	Brasilia	FtF	Brazilian Ministry of External Relations
September 2014	Brasilia	FtF	Brazilian Ministry of Mining & Energy
September 2014	Brasilia	FtF	Getúlio Vargas Foundation (FGV)
September 2014	Brasilia	FtF	European Union Delegation to Brazil
September 2014		Telephone	GranBio (Alagoas)
September 2014	Brasilia	FtF	Embassy of the US to Brazil
November 2014	London	FtF	Embassy of Brazil to the UK
September 2015	São Paulo	FtF	UNICA (Brazilian Sugarcane Industry Association)
September 2015	São Paulo	FtF	Odebrecht
September 2015	Campinas	FtF	CTBE (Brazilian Bioethanol Science and Technology Laboratory)
September 2015	Brasilia	FtF	Brazilian Ministry of Agriculture
September 2015	Brasilia	FtF	Brazilian Ministry of External Relations
September 2015	Brasilia	FtF	Brazilian Ministry of Mining & Energy
September 2015	Brasilia	FtF	UNICA (Brazilian Sugarcane Industry Association)
September 2015	Brasilia	FtF	Brazilian Cooperation Agency (ABC)
September 2015	Brasilia	FtF	US Embassy to Brazil
September 2015	Brasilia	FtF	EU Delegation to Brazil
September 2015		Email	UNEP
October 2015		Telephone	Casa Civil (Brazil)
September 2018	Brasilia	FtF	Brazilian Ministry of External Relations
September 2018	Brasilia	FtF	Brazilian Ministry of Mining & Energy
September 2018	Brasilia	FtF	Brazilian Ministry of Agriculture
September 2018	Brasilia	FtF	Casa Civil (Brazil)

\* FtF: Face-to-face