

ENERGY DEVELOPMENT AND THE CLASH OF SECURITIES

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ABSTRACT

This paper analyses the relationship between global security concerns and policies that prioritise unsustainable energy developments over those of green energy. The paper argues that the growing securitisation of energy, the environment, climate, and water brings about two main problems closely linked to the energy discourse: (i) a conflict between securities and the legal uncertainty of determining which security issue prevails, and (ii) securitisation being devised in order to achieve certain policy gains. Firstly, the paper explores the conceptual issues and the evolution of the various dimensions of security. Secondly, as a case study, the exploration of unconventional reserves and the use of fracking in Brazil are analysed and aim to demonstrate: (i) how energy security was used to push forward the approval of an unsustainable energy policy, and (ii) how strategically energy security can prevail over environmental, climate and water securities in the promotion of unsustainable energy developments.

Keywords: energy law, energy security, climate change, sustainability, fracking

INTRODUCTION

The various concepts of security have been developed in the literature for decades to include threats to security arising from the relationship between man and nature. However, little is known about the role of these multifaceted notions of security within national and international policies relating to energy development. Thus, this paper seeks to partially redress this lack of analysis by examining the relationship between global security concerns and policies that prioritise unsustainable energy developments over those of green energy.

This paper argues that the growing securitisation of energy, environment, climate and water brings about two main problems closely linked to the energy development discourse. These problems are: a) a conflict between securities as well as the legal uncertainty of determining which security issue prevails; and b) securitisation being devised in order to achieve certain policy gains since policy makers can place a specific matter of interest within the security umbrella to prioritise and push forward the approval of preferred energy policies.

Firstly, this paper explores the conceptual issues by describing the various dimensions of security as well as briefly reviewing the evolution of the different notions of security. Secondly, as a specific case example, the exploration of unconventional reserves and the use of hydraulic fracking in Brazil are analysed. A general background to the Brazilian legal framework for the exploration of unconventional reserves is explained as well as depictions of the events surrounding the approval of the use of hydraulic fracking in Brazil. This case study aims to demonstrate: (i) how energy security was used to push forward the approval of an unsustainable energy policy, and (ii) how strategically energy security can prevail over environmental, climate and water securities in the promotion of unsustainable energy developments.

DIFFERENT NOTIONS OF SECURITY

The securitisation of energy has arisen from a combination of various factors. In the 1970s and 1980s, the world economy struggled to overcome the damaging effects of the oil crises of

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1973–74 and 1979–80 which ultimately led to economic recessions and high unemployment.¹ The term energy security was coined to denote concerns relating to oil and potential costs of supply disruption, associated with an over-dependence on oil imports.² Nowadays, besides higher energy prices and the increased reliance of most developed and many developing countries on imported oil from geopolitically unstable regions of the world, uncertainty over future fossil fuel reserves and the rising demand for energy in emerging economies like China and India are factors which reignite policy concerns over energy supply and the securitisation of energy.

Scholars have debated the notion of “energy security” and a consensual definition has not been reached yet. Ciută has already highlighted the terminological profusion and ambiguity of the concept of energy security which in the literature acquires meaning through the linkage between growth, sustenance and the environment.³ These three constituent dimensions of energy security do not appear concomitant in all definitions of energy security.

The International Energy Agency (IEA)’s mainstream definition of energy security as “the uninterrupted availability of energy sources at an affordable price”⁴ has been generally repeated in the literature. However, in the later decades of the 20th century the energy security discourse was expanded to include the environment. Cherp and Jewell describe the change in the perception of energy security as ‘robustness perspective’ which was influenced by the idea of globally limited resources.⁵ The IEA’s own definition of energy security has evolved to “the uninterrupted physical availability at a price which is affordable, while respecting environmental concerns”.⁶ The 4 A’s of energy security: availability (geological), accessibility (geopolitical), acceptability (environmental and social) and affordability (economic) introduced by the Asia Pacific Energy Research Centre (APEREC) has also been the focus of recent literature.⁷ Under these definitions, environmental sustainability becomes a condition for energy security to be met, endorsing as such the idea that energy security and environmental sustainability are indivisible.

Various factors contributed to this change in concept. Environmental disasters, such as the large Gulf War oil spill in 1991, the hurricanes Katrina and Rita in the US in 2005 and the oil spill in the Gulf of Mexico in 2010 demonstrated how energy and the environment are linked, with the pursuit of energy security causing growing threats to the environment. In addition, climate change has also shown to disrupt energy systems.⁸ In 2011, the world witnessed the catastrophic earthquake and tsunami damage to the Fukushima nuclear power plant in Japan. Recent drought in Brazil has depleted reserves at its hydroelectric plants, leaving power generation at precariously low levels.⁹ The record storms and floods in the Midwest of the United States in June 2008 struck at the heart of America’s grain belt at a time when the USA has become more reliant on corn-based ethanol for its fuel supply.¹⁰

¹ Janusz Bielecki, 'Energy Security: Is the Wolf at the Door?' (2002) 42(2) *The Quarterly Review of Economics and Finance* 235, 236.

² Frank Umbach, 'Global Energy Security and the Implications for the EU' (2010) 38(3) *Energy Policy* 1229, 1230; Aleh Cherp and Jessica Jewell, 'The Three Perspectives on Energy Security: Intellectual History, Disciplinary Roots and the Potential for Integration' (2011) 3(4) *Current Opinion in Environmental Sustainability* 202, 203; Sandu-Daniel Kopp, *Politics, Markets and EU Gas Supply Security: Case Studies of the UK and Germany* (Springer VS 2015) 41-47.

³ Felix Ciută, 'Conceptual Notes on Energy Security: Total or Banal Security?' (2010) 41(2) *Security Dialogue* 123, 127.

⁴ IEA, 'Energy Security' (2014) <<http://www.iea.org/topics/energysecurity/>> accessed 26 March 2015.

⁵ Cherp and Jewell (n 2) 204, 207.

⁶ Jessica Jewell, 'The IEA Model of Short-term Energy Security (MOSES): Primary Energy Sources and Secondary Fuel' (2011) IEA Working Paper, 9.

⁷ Aleh Cherp and Jessica Jewell, 'The Concept of Energy Security: Beyond the Four As' (2014) 75 *Energy Policy* 415; Kopp (n 2).

⁸ Marcus King and Jay Gullede, 'Climate Change and Energy Security: An Analysis of Policy Research' (2014) 132(1) *Climate Change* 57.

⁹ Jonathan Watts, 'Brazil's Worst Drought in History Prompts Protests and Blackouts' *The Guardian* (23 January 2015).

¹⁰ Frank Umbach, 'The Intersection of Climate Protection Policies and Energy Security' (2012) 10(4) *Journal of Transatlantic Studies* 374, 377.

The problem of greenhouse gas emissions and the international commitments of governments under the Kyoto Protocol prompted some countries to emphasise the environmental aspects of their energy policies¹¹ and brought about the Post-Kyoto emission targets as well as actions and debates regarding low carbon energy transition and geopolitics of climate change. As a result, another concept of energy security has been promoted to include climate change. The European Commission, for example, substituted “environmental concerns” from its 2000 energy security definition¹² with climate change: “the uninterrupted physical availability of energy products and services on the market, at a price which is affordable for all consumers (private and industrial), while contributing to the EU’s wider social and climate goals.”¹³

Nevertheless, although some scholars have included environment and climate change within the concept of energy security, an analysis of academic writings and political debates shown environment, climate change and energy as independent aspects; thus, creating clashes between the concept of energy security with environment protection and climate change policies.

Similarly to energy, the last few decades have witnessed the proliferation of theories examining a growing securitisation of the environment.¹⁴ Scholars of environmental security have looked at the connections between environmental degradation and conflict, and envisaged growing conflict over resources as demand for some essential commodities increases and supplies appear more precarious.

Although environmental security research in the 1990s focused more on local resource scarcity, threats to climate change (also referred as “global environmental change”) appeared as well by means of a prominent environmental problem within the debate regarding the redefinition of security.¹⁵ Albeit contested,¹⁶ the growth in consciousness about climate change effects has intensified the move towards framing climate change within the security dimension.¹⁷

The literature is unclear about the differences and similarities of environmental and climate securities. While some consider climate change with focus not only on the reduction of carbon emissions but also on a sustainable system in general,¹⁸ others make a distinction by

¹¹ Luise Röpke, 'The Development of Renewable Energies and Supply Security: A Trade-off Analysis' (2013) 61 Energy Policy 1011, 1011.

¹² See EC, Green Paper - Towards a European Strategy for the Security of Energy Supply, COM(2000) 769 final.

¹³ EC, Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions Energy 2020: A Strategy For Competitive, Sustainable And Secure Energy, COM(2010) 639 final.

¹⁴ See, for example, Lester Russell Brown, *Redefining National Security* (Worldwatch Institute 1977); Norman Myers, 'Environment and Security' (Spring 1989) 74 Foreign Policy 23; Helga Haftendorn, 'The Security Puzzle: Theory-Building and Discipline-Building in International Security' (1991) 35(1) International Studies Quarterly 3; Keith Krause and Michael C. Williams, 'Broadening the Agenda of Security Studies: Politics and Methods' (1996) 40(2) Mershon International Studies Review 229; Hans Günter Brauch and others (eds), *Facing Global Environmental Change: Environmental, Human, Energy, Food, Health and Water Security Concepts* (Springer 2009); Simon Dalby, *Security and Environmental Change* (Wiley 2013).

¹⁵ See, for example, Jessica Tuchman Mathews, 'Redefining Security' (Spring 1989) 68(2) Foreign Affairs 162, 168-171; David A Wirth, 'Climate Chaos' (1989) 74 Foreign Policy 3; Bruce A Byers, 'Peace and the Planet: Linking Ecology and Security' (1991) 8(3) International Journal of Humanities & Peace 17; Marvin S Soroos, 'Global Change, Environmental Security, and The Prisoner's Dilemma' (1994) 31(3) J Peace Res 317.

¹⁶ Raleigh and Urdal and Gleditsch, for instance, contest the view that climate change is a driver of violent conflict. See Clionadh Raleigh and Henrik Urdal, 'Climate Change, Environmental Degradation and Armed Conflict' (2007) 26 Political Geography 67; N P Gleditsch, 'Whither the Weather? Climate Change and Conflict' (2012) 49(1) Journal of Peace Research 3.

¹⁷ The United Nations Secretary-General Ban Ki-moon stated that “climate change not only exacerbates threats to peace and security, it is a threat to international peace and security.” UN Security Council SC/10332, 6587th Meeting, 20 July 2011.

¹⁸ Rogers-Hayden, Hatton and Lorenzoni define this discourse of climate change, which involves sustainability as a societal issue resulting from unsustainable use of the Earth's resources. See T Rogers-Hayden, F Hatton and I Lorenzoni, 'Energy Security' and 'Climate Change': Constructing UK Energy Discursive Realities' (2011) 21(1) Global Environmental Change 134, 140. For the use of climate change as a sustainable system see also Catherine Mitchell, *The Political Economy of Sustainable Energy* (Palgrave Macmillan 2008); Jürgen Scheffran and Antonella Battaglini, 'Climate and Conflicts: The

considering climate change as one aspect of the environment. In line with this latter view, whilst environmental security involves the interests of humans, animals and whole ecosystems in general, climate security is limited to global warming resulting from emission of greenhouse gases in the atmosphere, the physical changes in climate and its deterioration.¹⁹

The use of nuclear energy helps to clarify this divergent position in relation to climate and environmental securities. The split is between those who would recommend nuclear as a clean and low-carbon energy to tackle climate change²⁰ despite its unsustainability issues, such as the radioactive wastes, the potential to damage the environment and humans as experienced by the Chernobyl and the Fukushima Daiichi nuclear disasters, as well as the threat of nuclear catastrophe, and those who would not.²¹ Scholars who place sustainability at the centre of the climate change narrative do not support nuclear energy.

Water encompasses another aspect of the broadening of the security concept closely linked to energy security discourse. The concept of water security was originally defined in terms of adequate supply of usable water and was initially debated as a result of the five year drought in the Southwest of the US.²² The debate has evolved to the links between water and conflict as scholars envisage that water and water-supply systems are increasingly likely to be objectives of armed conflicts as human population grows, demand for fresh water increases and as water supply and demand become more problematic and uncertain as a result of climate change.²³ Water security has been central to the debate regarding the production of unconventional gas through hydraulic fracturing, commonly referred to as fracking, due to concerns about the risks of polluting groundwater.²⁴

PROBLEMS WITH SECURITISATION OF DIFFERENT INTERESTS

Increasing securitisation of energy and related policies – and the rise of different notions of security – bring about two main problems. Firstly, different security interests can compete with each other. Placing energy, the environment, climate and water under the security umbrella causes the problem of determining which security issue prevails when there are two or more security issues at stake. An example of conflict can be observed between the pursuit of energy security via the development of unconventional reserves and the use of fracking and its impact on climate, environmental and water securities. The development of any non-low carbon energy conflicts with climate security. Fracking, a technique used to unlock oil and gas from deposits of shale via the injection of high-pressure streams of sand, water, and chemicals into underground shale,²⁵ is generally associated with spills, risk of air pollution, contamination of

Security Risks of Global Warming' (2011) 11 *Regional Environmental Change* 27; Caroline Kuzemko, *The Energy Security-Climate Nexus* (Palgrave MacMillan 2013).

¹⁹ Maximilian Mayer and Peer Schouten, 'Energy Security and Climate Security under Conditions of the Anthropocene' in Jonathan Symons Luca Anceschi (ed), *Energy security in the era of climate change: The Asia-Pacific experience* (Palgrave Macmillan 2011) 13; Donald J Wuebbles, Aman Chitkara, Clay Matheny, 'Potential Effects of Climate Change on Global Security' (2014) 34(4) *Environment Systems and Decisions* 564.

²⁰ Anthony Giddens, *The Politics of Climate Change* (Polity Press 2009); Adam Corner and others, 'Nuclear Power, Climate Change and Energy Security: Exploring British Public Attitudes' (2011) 39(9) *Energy Policy* 4823; Frank Umbach, 'The Intersection of Climate Protection Policies and Energy Security' (2012) 10(4) *Journal of Transatlantic Studies* 374.

²¹ Catherine Mitchell, *The Political Economy of Sustainable Energy* (Palgrave Macmillan 2008); T Rogers-Hayden, F Hatton and I Lorenzoni, 'Energy Security' and 'Climate Change': Constructing UK Energy Discursive Realities' (2011) 21(1) *Global Environmental Change* 134.

²² Frances Stone, 'Water and Securities' (1957) 13(4) *The Analysts Journal* 59.

²³ Claudia Ringler, Asit K. Biswas and Sarah A. Cline (eds), *Global Change: Impacts on Water and Food Security* (Springer-Verlag 2010); United Nations World Water Assessment Programme (WWAP), *The United Nations World Water Development Report 2015: Water for a Sustainable World* (UNESCO 2015).

²⁴ In the UK, see House of Commons Environmental Audit Committee, *Environmental Risks of Fracking* (The Stationery Office Limited 2015). In Brazil, see Interinstitutional Working Group of Exploration and Production of Oil and Gas (GTPEG) Report 03/2013.

²⁵ Jason Schumacher and Jennifer Morrissey, 'The Legal Landscape of "Fracking": the Oil and Gas Industry's Game-Changing Technique is its Biggest Hurdle' (2013) 17(2) *Texas Review of Law & Politics* 239, 241.

surface and groundwater by chemical constituents, and harm to people's health and welfare.²⁶ Fracking has raised significant concerns which impact on water security, for example: (i) concerns over water withdrawals associated with shale gas development, and the extent to which they may deplete local water supplies or adversely impact local watersheds; (ii) the issue regarding managing wastewater as wastewater treatment facilities are not equipped to process such wastewater; and (iii) water contamination.²⁷

Secondly, securitisation can be devised in order to achieve certain policy gains. Policy makers can place a specific matter of interest within the security umbrella to prioritise and push forward the approval of preferred policies. Linking a specific matter to security creates a sense of urgency required to resolve the problem. As Barry Buzan and others note, 'issues acknowledged to be inside the security box—by virtue of their seriousness—warrant priority and may allow decision makers to pursue emergency measures outside the realm of normal politics.'²⁸

FRACKING: A CASE EXAMPLE

Following the analysis of the different notions of securities and its issues, this work focuses on the recent experience in Brazil in exploring unconventional reserves and allowing the use of fracking. The examination of this case example aims to reveal: (i) how energy security was used to push forward the approval of an unsustainable energy policy, and (ii) how strategically energy security can prevail over environmental, climate and water securities in the promotion of unsustainable energy developments.

The exploration of unconventional reserves in Brazil: general background

The exploration of unconventional oil and gas is not prohibited in Brazil. Law 9,478/1997 (the Petroleum Law)²⁹ defines blocks as "a part of a sedimentary basin formed by a vertical prism of an indefinite depth",³⁰ as such, authorising concessionaries to work within a vertical prism of an indefinite depth allows for the exploration of unconventional reserves. The same law also expressly authorises the exploration of "oil from wells, shale and other rocks, its derivatives, natural gas and other fluid hydrocarbons".³¹ In fact, policies to explore oil from shale have been employed in Brazil since the 1950's and today shale oil is explored in São Mateus do Sul in the State of Paraná although fracking has not been used as a technique for exploration.³²

The institutional and legal frameworks for the promotion and development of unconventional reservoirs are based on the same structure that governs conventional reserves. The prospecting and exploitation of deposits of petroleum and natural gas and of other fluid hydrocarbons are monopoly of the Federal Union. However, the Union can contract with state-owned or with private enterprises for the execution of these activities.³³ The Petroleum Law created the National Council for Energy Policy (CNPE) and the National Agency of Petroleum, Natural Gas and Biofuels (ANP). The former is linked to the Presidency of the Republic, presided over by the Minister of Mines and Energy (MME), and has the attribution of proposing national energy policies to the President of the Republic.³⁴ The latter was created as a special autarchic

²⁶Fred Krupp, 'Don't Just Drill, Baby--Drill Carefully: How to Make Fracking Safer for the Environment' (2014) 93(3) Foreign Affairs 15; Daniel Twomey and others, 'Fracking: Blasting the Bedrock of Business' (2014) 12(1) Competition Forum 204.

²⁷ LeRoy C Paddock and Jessica Anne Wentz, 'Emerging Regulatory Frameworks for Hydraulic Fracturing and Shale Gas Development in the United States' in Donald N. Zillman and others (eds), *The Law of Energy Underground: Understanding New Developments in Subsurface Production, Transmission, and Storage* (OUP 2014) 147, 153.

²⁸ Barry Buzan, Ole Wæver, and Jaap de Wilde, *Security: A New Framework for Analysis* (Lynne Rienner 1998) 3.

²⁹ Lei nº 9.748, de 6 de agosto de 1997, DOU 07/08/1997.

³⁰ Article 6, XIII.

³¹ Article 61.

³² For a study regarding shale oil in Brazil, see Marilyn Mariano dos Santos, 'Xisto: Um Estudo de Viabilidade Econômica para o Brasil' (PhD Thesis, Universidade de São Paulo 2010).

³³ Article 177, I and paragraph 1, Brazilian Federal Constitution.

³⁴ Article 2 Law 9,748/1997.

linked to MME and has the authority to regulate, hire and supervise the economic activities of the oil, natural gas and biofuel industry, as well as elaborate the bidding announcements and promote the bidding for the concession of exploration, development and production activities, amongst other responsibilities.³⁵

Accordingly, the CNPE Resolution 6 of 25 June 2013 (Resolution 6), approved by the President of the Republic on 6 August 2013, authorised the auction of 240 onshore gas blocks by the ANP for the development of conventional and unconventional oil and gas reserves (the 12th bidding round). The ANP Ordinance 181 of 22 August 2013 set out the Special Licensing Committee to lead the bidding procedures.³⁶

The reasons for exploring unconventional reserves are as follow:

Energy security

Although the term ‘energy security’ did not appear in Resolution 6, providing for the continuity of exploration and production of natural gas from conventional and unconventional petroleum resources was expressly stated as an aim.³⁷ Another important linked legislation is the CNPE Resolution 8 of 21 July 2003, which established as a national energy policy the expansion of oil and gas production in order to achieve a sustainable auto sufficiency.³⁸ These objectives are related directly to the Brazilian dependency on Bolivian gas and the unstable situation in Bolivia. In 2013, Brazil imported 59% of its natural gas from which Bolivia accounted for 67% of the total Brazilian gas imports.³⁹ The impact of this dependency and the uncertainty regarding the security of natural gas from Bolivia were evidenced in 2006 when the Bolivian President Evo Morales nationalised the hydrocarbons industry in Bolivia and increased royalties from 50 per cent to 82 per cent in their two largest fields.⁴⁰

Affordability was another important driver within energy security. When rejecting the Project of Law 1409/13 which sought the suspension of Resolution 6, ANP Ordinance 181/2013 and the 12th bidding round, the Brazilian Mines and Energy Commission expressly advocated the exploration of shale gas as a public interest. Presenting shale gas as a cheap and clean energy source, the Commission supported the view that shale gas had the potential to supply a great part of the Brazilian energy demand for decades and its exploration would positively impact the gas for cooking and electric energy as the supply shock would reduce the gas price as well as the operation costs of thermoelectric power benefiting, as such, society, in particular the ones on low income.⁴¹ Thus, the notion of energy security – understood as a reduction of external energy dependency and affordable prices – was used to push forward the approval of the policy.

Economic development and knowledge acquisition

Another aim which expressly appeared in Resolution 6 was the attraction of investments to regions lacking in geological knowledge or with technological barriers to overcome, allowing the emergence of new producing basins of conventional and unconventional natural gas and petroleum resources.⁴² The exploration of unconventional reserves was also seen as an opportunity to improve the local/regional economy due to the creation of job opportunities as well as an increase in public revenue via the payment of royalty and taxes.

In relation to knowledge acquisition, the ANP has added to the concession contract the requirement to drill the first well in the Exploration Phase aiming at the source rock and established as mandatory that the concessionaire performs well profiles, sampling and specific

³⁵ Articles 7 and 8 Law 9,748/1997.

³⁶ Portaria ANP nº 181, de 22 de agosto de 2013, DOU 23/8/2013.

³⁷ Article 2, CNPE Resolution 6 of 25 June 2013.

³⁸ Resolução CNPE nº 8, de 21 de julho de 2003, DOU 7/8/2003.

³⁹ Ministério de Minas e Energia (MME), ‘Boletim Anual de Exploração e Produção de Petróleo e Gás Natural – 2014’ (2014).

⁴⁰ ‘Now it's the People's Gas’, *The Economist* (Caracas, La Paz and São Paulo, 4 May 2006).

⁴¹ Rapporteur Opinion of the Mines and Energy Commission on the Project of Law 1409/13.

⁴² Article 2 of CNPE Resolution 6 of 25 June 2013.

analysis,⁴³ leaving, as such to the private sector the acquisition of geological knowledge of the basins and taking the 12th round as an opportunity to generate knowledge.⁴⁴

Other reasons

Although not stated in legislation, according to the view expressed by a politician in session 191.2.54.O in the Chamber of Deputies on 5 July 2012, the exploration of shale gas in Brazil would be an opportunity for the Brazilian oil company PETROBRAS to recover in a very short period from the damage caused by the delay in the oil refineries under construction and from the enormous costs of trying to enable the exploration of oil below the pre-salt layer, rescuing as such the company's image on the stock exchange whose shares values are decreasing.⁴⁵ The extent to which this view acted as a driver for the exploration of unconventional reserves under the 12th bidding round is subject to debate and further research. If this reason is found to have weight on the government's decision it may serve as an example where the government used the rhetoric of energy security as a banner to garner political support for the promotion of unsustainable energy development in prevalence over the promotion of green energy projects.

The prevalence of energy over environmental, climate and water securities

Although the protection of the environment and the mitigation of greenhouse gas emissions are safeguarded in the Brazilian legislation,⁴⁶ the way the 12th bidding round was carried out shows signs of derogation from environmental obligations as well as lack of debate in relation to climate change.

Firstly, Resolution 6 authorised the auction of 240 exploration blocks that are located in seven sedimentary basins close to environmentally protected areas, indigenous land and given the case of the Parana basin located below one of the largest aquifers in Brazil.⁴⁷ As standard procedure, areas offered in the bidding rounds held by ANP must be previously analysed as for the environmental sensitivity by the Brazilian Institute of Environment and Renewable Natural Resources (Ibama) and by the state competent environmental organisations.⁴⁸ After restructuring of Ibama, the technical group responsible for prior analysis of the areas to be bid on includes representatives of the Environment Ministry (MMA), Ibama and Chico Mendes Institute for the Conservation of Biodiversity (ICMBio), and it is called Inter-institutional Working Group of Exploration and Production of Oil and Gas (GTPEG).⁴⁹ Nonetheless, Resolution 6 was fully drafted before an Environmental Analysis Preview by the CTPEG. The GTPEG only received the final updated information about the blocks to be auctioned which would allow them to carry out an Environmental Analysis Preview on 11 July 2013.⁵⁰ In addition, the GTPEG Report was only completed on 3 October 2013 although the 12th bidding round had already been approved by the President of the Republic and published almost two months earlier in August 2013 and the ANP had started the bidding procedures on 23 August 2013. The GTPEG even expressed its surprise with the publication of Resolution 6 as the auction had been approved before the findings of the analyses of the environmental body.⁵¹

⁴³ Clause 5.11 of the 12th round concession contract between ANP and Petra Energia S.A., Bayar Empreendimentos e Participações Ltda, Companhia Paranaense de Energia and Tucumann Engenharia e Empreendimentos Ltda (PART-T-300_R12 N. 48610.000099/2014-00).

⁴⁴ Public Federal Ministry Technical Opinion 242/2013-4^oCCR of 14 November 2013, 15.

⁴⁵ Câmara dos Deputados, Sessão 191.2.54.O.

⁴⁶ The protection of the environment and the mitigation of greenhouse gas emissions are aims and objectives of the national energy policy under article 1, IV and XVIII of the Petroleum Law which also further specifies under article 8, IX, that the ANP shall 'enforce the good practices for conservation and rational use of oil, its products, of natural gas, and the preservation of the environment.'

⁴⁷ GTPEG Report 03/2013 (Parecer Técnico GTPEG n^o 03/2013).

⁴⁸ CNPE Ordinance n^o 08/03.

⁴⁹ MMA Ordinance n^o 119/08 and n^o 218/12.

⁵⁰ GTPEG Report 03/2013.

⁵¹ Ibid.

Secondly, the ANP may not have observed fully the requests from the GTPEG and the State Environmental Agency to exclude from the blocks to be auctioned certain environmentally protected areas. As illustration, in a lawsuit filed by the Public Federal Ministry against the 12th bidding round,⁵² there is the argument that, according to the State Environmental Agency, block PART-T-285 was covering a conservation area. However, according to the maps published by ANP in its website this area does not seem to have been excluded.

Thirdly, the CTPEG concluded in its report that there were not enough elements to make an informed decision about fracking and recommended the intensification of the debate with the society and an environmental evaluation of the sedimentary area to be undertaken. The ANP has pointed out that an environmental evaluation of the sedimentary area is not a precondition for auction⁵³ and as such has not carried it out before the signature of the concession contracts. This means that the concessionaires could start the first exploration phase without an environmental evaluation as this phase started on the date that the contract was signed.⁵⁴ Therefore, this unwillingness to follow the environmental body advice could demonstrate in this initial phase the avoidance of environmental matters constraining energy activities.

Fourthly, the auction was authorised without the existence of any substantive environmental standards applicable to fracking. The ANP only regulated its use in Brazil after the auction which took place in November 2013.⁵⁵

Whilst one can observe some discussion concerning environmental obligations, the debate regarding climate change was almost absent. The only official record relating to climate change before the auction took place was in the public consultation beginning on 23 August 2013 when Greenpeace requested the exploration of unconventional reserves under the concession contract to be removed from the tender arguing that emissions from exploitation of unconventional sources has the potential to exacerbate the greenhouse effect, impairing the Brazilian commitments. Nevertheless, the ANP did not provide a specific reply in relation to climate change and limited itself to reject Greenpeace proposal to remove from the tender the exploration of unconventional reserves on the grounds that it had been allowed by the CNPE resolution. Even though the Technical-Environmental Seminar and the public audience in November 2013 were opportunities to debate environmental as well as climate change matters, no further discussion regarding climate change took place.

Despite having ratified the Kyoto Protocol in 2002, Brazil was not obliged to assume goals on the reduction of emissions. Therefore, no emissions reduction commitments may be one of the reasons behind this lack of debate. The lack of debate demonstrates that climate change is not a priority in the governmental agenda or in the public opinion concerning energy development in Brazil. On this account, the answer to the problem of determining which security issue prevails when there are two or more security issues at stake is that energy security has gained prominence over climate security on this occasion.

After the auction took place, recourse to the judiciary system was the mechanism of environmental protection left to challenge the ANP's decision. According to article 129, III of the Brazilian Federal Constitution, it is an institutional function of the Public Prosecution to institute civil investigation and public civil lawsuit to protect public and social property, the environment and other diffuse and collective interests. Thus, the 12th bidding round has been

⁵² Public Civil Action n° 5005509-18.2014.404.7005 filed by Parana Public Federal Ministry on 22 May 2014.

⁵³ Argument used by the ANP in its interlocutory appeal against Public Civil Action n° 5005509-18.2014.404.7005. See *Agravo de Instrumento* n° 5012993-50.2014.404.0000/PR.

⁵⁴ Clause 5.1.1 of the 12th round concession contract between ANP and Petra Energia S.A., Bayar Empreendimentos e Participações Ltda, Companhia Paranaense de Energia and Tucumann Engenharia e Empreendimentos Ltda (PART-T-300_R12 N. 48610.000099/2014-00).

⁵⁵ See ANP Resolution 21, 10 April 2014 (Resolução ANP n° 21, de 10 de abril de 2014, DOU 11/04/2014).

subject to civil lawsuits by the Federal Public Ministry on the basis that fracking conveys a high degree of irreversible threat to the environment, human health and regional economic activity.⁵⁶ The concession contracts in dispute have been suspended by a temporary restraining order. This demonstrates that in terms of policy making in Brazil, energy security prevailed over environmental security. However, there was the mechanism of judicial review to confront this hierarchy. The way in which the Court will decide this matter is to be seen. The decision will certainly shed some light on the normative disputes regarding the hierarchy of energy and environmental securities.

CONCLUSION

Following an analysis of the evolution of the different notions of securities, this work has demonstrated two issues brought about with the rise of different aspects within the security sphere, namely the conflict between different notions of security and its normative hierarchy as well as securitisation being devised in order to achieve certain policy gains.

An investigation of the recent experience in Brazil in exploring unconventional reserves and allowing the use of fracking has revealed that (i) energy security was used to push forward the approval of unsustainable energy policy in prevalence over the promotion of green energy projects, albeit further research is necessary to determine whether there was genuine or mere rhetoric use of energy security; (ii) energy policy making has prioritised energy over environmental, climate and water securities. Nevertheless, while the debate has demonstrated an unclear hierarchy between energy and environmental securities, the lack of discussion concerning climate change by the government and the public points to the conclusion that energy security prevailed over climate security in this energy development case study in Brazil.

⁵⁶ Public Civil Action n. 5005509-18.2014.404.7005 filed by Parana Federal Public Ministry on 22 May 2014; Public Civil Action n. 0006519.75.2014.403.6112 filed by Sao Paulo Federal Public Ministry on 17 December 2014.