

Introduction

'Das Große spiegelt sich im Kleinen'
(‘The whole is a reflection of its parts’)
(German proverb)

After triggering a ‘gas glut’ in the United States of America, shale gas extraction is currently arriving in Europe.¹ Several oil and gas companies already applied for exploratory licences in a number of EU Member States.² These applications, however, were met with public resistance.³ Societal concerns about the environmental sustainability of shale gas extraction were fuelled by the occurrence of earth tremors in the UK and media coverage of water contamination in America.⁴

¹ Anne-Sophie Corbeau ‘The Introduction of unconventional gas in Europe: Opportunities and Challenges’ in: Martha Roggenkamp and Olivia Woolley (eds) *‘European Energy Law Report IX’* (Intersentia Publishing Ltd, Cambridge 2012) 195/196 (hereinafter: Corbeau); Daniel Yergin *‘The Quest: Energy, Security and the Remaking of the Modern World’* (Penguin Ltd., London 2011) 329 (hereinafter: Yergin).

² Philippe & Partners Law Firm *‘Final Report on Unconventional Gas in Europe’* (2011) 5 available at: http://ec.europa.eu/energy/studies/doc/2012_unconventional_gas_in_europe.pdf [accessed 12 March 2012] (hereinafter: Philippe & Partners). Throughout this book the term ‘Member State’ will be used generically for EU Member States.

³ Philippe & Partners 11–14; Dominik Greinacher and Sebastian Helmes ‘Revising the Environmental Impact Assessment Thresholds: The Case of Germany’ in Cecile Musialski et al. (eds) *‘Shale Gas in Europe’* (Claeys & Casteels, Deventer 2013) 508; Paul Cairney, Manuel Fischer, and Karin Ingold ‘Hydraulic Fracturing Policy in the United Kingdom: Coalition, Cooperation, and Opposition in the Face of Uncertainty’ in: Christoph Weible, Tanya Heikkila, Karin Ingold and Manuel Fischer (eds) *‘Policy debates on hydraulic fracturing: comparing coalition politics in North America and Europe’* (Palgrave Macmillan, Basingstoke 2016) 87–95 (hereinafter: Cairney/Fischer/Ingold); Sébastien Chailleux and Stéphane Moyson ‘The French Ban on Hydraulic Fracturing and the Attempts to Reverse It: Social Mobilization, Professional Forums, and Coalition Strategies’ in: Christoph Weible, Tanya Heikkila, Karin Ingold and Manuel Fischer (eds) *‘Policy debates on hydraulic fracturing: comparing coalition politics in North America and Europe’* (Palgrave Macmillan, Basingstoke 2016) 123–36 (hereinafter: Chailleux/Moyson).

⁴ Corbeau 202/203.

‘Frack Off’,⁵ ‘No Shale Gas’⁶ or ‘Stop Fracking Now’⁷ are just some of the Non-Governmental Organizations and Initiatives that are actively opposing hydraulic fracturing and/or shale gas extraction in Europe and beyond. They are united by one demand: a prohibition of hydraulic fracturing and/or shale gas extraction.⁸

Outlawing shale gas extraction appears to be a natural choice for many, considering that the activity has been portrayed as new and dangerous. Potential repercussions for the environment and humans could be manifold and unforeseeable. By the beginning of the 2010s, the controversy about the potential threats of shale gas extraction became so eminent in societies around the globe that a Hollywood blockbuster movie on the subject was shot (called ‘*Promised Land*’), featuring superstar Matt Damon as lead character.⁹

Another film, a documentary called ‘Gasland’, which investigated the early days of the shale gas rush in the US, was even nominated for an Oscar.¹⁰ That film entailed a sequence, which captured public imagination and turned into a symbol for potential issues of shale gas extraction: American house owners were filmed while setting their water taps on fire.¹¹

The regulatory reaction to these pictures in Europe was swift and forceful:¹² a number of EU Member States put in place moratoria or out-

⁵ Frack Off Extreme Energy Action Network <http://frack-off.org.uk/> [accessed 28 November 2016].

⁶ New Brunswick Anti-Shale Gas Alliance <http://www.noshalegasnb.ca/> [accessed 28 November 2016].

⁷ Stop Fracking Now <http://www.stopfrackingnow.com/> [accessed 28 November 2016].

⁸ The difference between both is discussed at Chapter 1 below.

⁹ Focus Features ‘Promised Land Movie (2012)’ available at: http://www.focusfeatures.com/promised_land [accessed 22 December 2012].

¹⁰ The homepage of the movie ‘Gasland’ is available at International WOW Company, <http://www.gaslandthemovie.com/> [accessed 22 December 2012]. In 2013 the director launched another movie called ‘Gasland 2’. For the Oscar nomination, see Mike Soraghan *New York Times* (24 February 2011), ‘Groundtruthing Academy Award Nominee “Gasland”’ available at: <http://www.nytimes.com/gwire/2011/02/24/24greenwire-groundtruthing-academy-award-nominee-gasland-33228.html?pagewanted=all> [accessed 22 December 2012].

¹¹ It was claimed that their water supplies had been poisoned by shale gas extraction. Those claims were later thrown into question by another documentary that defended shale gas extraction, called ‘*Frack Nation*’ available at Phelim McAleer <http://fracknation.com/> [accessed 22 December 2012].

¹² Occasionally, it has indeed been a direct reaction to the movies, see the debate on a shale gas moratorium for Northern Ireland in the Northern Ireland Assembly: Northern Ireland Assembly Deb 6 December 2011, Vol 69 No 6, cols. 305 and 311 (hereinafter: Northern Ireland minutes).

right bans on the activity.¹³ These quick actions have been underpinned by the opinion of some legal scholars, who claim that it is very easy to prohibit shale gas extraction, whereas it is more complicated to create permissive shale gas regulation.¹⁴

But there is also a different view in Europe. Above all, the European Commission appears to be open to permissive shale gas regulation.¹⁵ Shale gas extraction is viewed as a potential ‘game-changer’ for the security of energy supplies in Europe.¹⁶ Supporters of this argument point towards the USA, the first country in the world to extract shale gas on an industrial scale.¹⁷ Shale gas allowed the USA to switch its gas-importer status to

¹³ As described in much detail below in Chapter 3.

¹⁴ Tina Hunter, Emre Usenmez and John Paterson ‘Future Trends in Shale Gas Law and Policy in the United Kingdom’ in Tina Hunter (ed.) *Handbook of Shale Gas Law and Policy* (Intersentia, Cambridge 2016) 389 at footnote 40 (hereinafter: Hunter/Usenmez/Paterson). The author questions that proposition. It can be just as difficult to get prohibitive shale gas regulation right as it is to produce a coherent permissive legal framework for the activity. The most immediate example is probably Bulgarian shale gas regulation. Bulgaria put into place one of the first bans on shale gas extraction in the world. It prescribed a maximum pressure that may be used for gas extraction (20 atmospheres, according to art. 1 of the Bulgarian ban: Bulgarian National Assembly ‘Decision to ban the application of hydraulic technology according to the break-in, study and/or extraction of oil and gas in the Republic of Bulgaria’ published in (2012) No 7 *Official Journal of Bulgaria* 13 (РЕШЕНИЕ за забрана върху прилагането на технология-та хидравлично разбиване при проучване/или добив на газ и нефт на територията на Република България published in (2012) БРОЙ 7, ДЪРЖА ВЕШЕСТНИК 13) (hereinafter: Bulgarian moratorium). Immediately afterwards it became clear that no gas reservoir, whether of shale gas or any other, could be reached by drills that are executed with such low pressures. As a result, not only shale gas but any form of gas extraction was impossible in Bulgaria until the ban had been revised in line with the findings of a parliamentary committee: *Временна комисия за проучване, анализ и обсъждане на добри практики и законодателни решения във връзка с регулирането на дейности по проучване и добив на подземни богатства при опазване на околната среда* ‘ПРОТОКОЛ № 1’ of 11 April 2012, 3 (Ad-hoc Committee to study and analyse and discuss best practices and legislative decisions concerning the regulation of activities in exploration and mining and effects on the environment ‘MINUTES № 1’ of 11 April 2012, page 3).

¹⁵ See below Chapter 2.

¹⁶ Maximilian Kuhn and Frank Umbach *Strategic Perspectives of Unconventional Gas: A Game Changer with Implications for the EU* (2011) European Centre for Energy and Resource Security (EUCERS) Strategy Paper No 1 <http://www.eucers.eu/2011/05/06/eucers-strategy-paper-no1/> [accessed 24 April 2012] (hereinafter: EUCERS).

¹⁷ Slawomir Raszewski ‘Shale Gas and Energy Security’ in Tina Hunter (ed.) *Handbook of Shale Gas Law and Policy* (Intersentia, Cambridge 2016) 124 (hereinafter: Raszewski); Corbeau 195 and 203; Yergin 329.

that of a gas-exporter.¹⁸ It has been argued that European countries could similarly free themselves from the iron grip of their current gas-suppliers.¹⁹

Moreover, shale gas extraction could have the potential to lower gas prices.²⁰ It is not even necessary for shale gas extraction to actually commence in the EU to achieve that goal.²¹ The mere prospect of domestic shale gas extraction in Europe might make current suppliers think twice about further increases in the price of their commodity.²²

In line with the arguments from both sides, studies on shale gas extraction in Europe and its Member States identified environmental protection and energy security as the two most important aspects for the appraisal of the activity.²³ Prudent shale gas regulation should operate between these poles.²⁴

It is important to note that environmental protection and energy security are not mere societal interests. They also have legal leverage and are enshrined in EU constitutional documents and in the constitutions of EU

¹⁸ Ibid.

¹⁹ For more on that see Chapter 1 below.

²⁰ Affordability of energy is part of the security of supplies, see Leigh Hancher and Sally Janssen, 'Shared Competences and Multi-Faceted Concepts – European Legal Framework for Security of Supply' in Barton B et al. (eds) *Energy Security: managing risk in a dynamic legal and regulatory environment* (Oxford University Press, Oxford 2004) 93.

²¹ Commission 'Communication on the exploration and production of hydrocarbons (such as shale gas) using high volume hydraulic fracturing in the EU' (Communication) *COM (2014) 23 final* 2 at 3 (hereinafter: Commission Shale Gas Communication); Ivan L G Pearson et al. *Unconventional Gas: Potential Energy Market Impacts in the European Union* (Joint Research Centre of the European Commission, 2012) 59 available at: http://ec.europa.eu/dgs/jrc/downloads/jrc_report_2012_09_unconventional_gas.pdf [accessed 20 May 2014] (hereinafter: Pearson et al.); EUCERS 42. More on that can be found in Chapter 1 below.

²² Ibid. Current suppliers would not want to raise the price beyond the point at which it would be cheaper for European countries to develop their domestic shale gas reserves than to buy imported gas.

²³ Milieu Ltd *Regulatory provisions governing key aspects of unconventional gas extraction in selected Member States* (2013) available at: http://ec.europa.eu/environment/integration/energy/uff_studies_en.htm [accessed 4 September 2014] 16; EUCERS 6; Sachverständigenrat für Umweltfragen (SRU); Martin Faulstich et al. *Fracking zur Schiefergasgewinnung Ein Beitrag zur energie- und umweltpolitischen Bewertung Stellungnahme* available at: http://www.umweltrat.de/SharedDocs/Downloads/DE/04_Stellungnahmen/2012_2016/2013_05_AS_18_Fracking.pdf?__blob=publicationFile [accessed 2 July 2013] 39 et seq. (hereinafter: SRU Faulstich).

²⁴ Notwithstanding the fact that other interests might play a role as well, see Chapter 1 below.

Member States in the form of state objectives.²⁵ State objectives²⁶ are legal norms that address the state, not the individual.²⁷

The legislator is asked to adhere to the objectives that are relevant to a regulated area when creating new laws. If a legal norm disregards a relevant constitutional objective it may be annulled by national constitutional courts.²⁸ Thus, new regulations may only be deemed legally sound if they comply with the applicable constitutional requirements.²⁹

In the case of shale gas regulation, the legislator is asked to adhere to, seemingly contradictory, constitutional objectives. The strongest environmental protection can be achieved by not allowing shale gas extraction in Europe at all. The best result with a view to energy security is achieved by not applying any environmental safeguard measures to shale gas extraction. The interplay between these two interests is hence a focal point for shale gas regulation and this book.

The book is organized in three parts: after the introduction, a first part, consisting of Chapters 1, 2 and 3, deals with shale gas, EU and Member State regulation. The purpose of this part is to show that strictly prohibitive shale gas regulation, which is currently favoured in many corners of

²⁵ They are enshrined in the form of (quasi-)constitutional objectives in several national constitutions and in the Treaty on the Functioning of the European Union (hereinafter: TFEU) as well as in the Treaty on the European Union (hereinafter: TEU). Although TFEU and TEU are not actually being called 'constitutions', their evolution into the current form is the result of endeavours to draw up a constitutional document for Europe, see Paul Craig and Grainne de Burca *'EU Law Texts Cases and Materials'* 5th edition (Oxford University Press, Oxford 2011) 23 and 25 (hereinafter: Craig/De Burca). TEU and TFEU contain the provisions of the failed European Constitution of 2005, with only minor modifications, and are considered to be quasi-constitutional documents, see Craig/De Burca 25 and 75. Thus, the term quasi-constitutional objectives will be used when objectives of these two Treaties are discussed in particular. In all other parts the term constitutional objectives is used generically, meaning that it shall also encompass quasi-constitutional objectives.

²⁶ Often also referred to as constitutional objectives in countries with a written constitution; for reasons of clarity this book entertains the term constitutional objectives hereinafter.

²⁷ See Chapter 4 below.

²⁸ See, for instance, the rulings of the German Federal Constitutional Court in BVerfGE 14, 263 (275); 59, 57 (108); indirectly BVerfGE 102, 1 (18); Bericht der Sachverständigenkommission. *'Staatszielbestimmungen/ Gesetzgebungsaufträge'* 1983 in Bundesminister des Innern/Bundesminister der Justiz (eds) *'Staatszielbestimmungen/Gesetzesbestimmungen'* (Konkordia, Bonn, 1983) paragraphs 7 et sqq.

²⁹ Konrad Hesse *'Grundzüge des Verfassungsrechts'* 15th edition (C F Müller, Heidelberg 1985) paragraph 72 (hereinafter: Hesse).

Europe, is difficult to reconcile with constitutional law pre-settings. This reasoning applies equally to EU³⁰ and Member State law.

To demonstrate that issue, Chapter 1 introduces the two concepts of environmental protection and energy security. It assesses the main potential environmental issues as well as possible energy security benefits that are associated with shale gas extraction. The chapter starts by explaining what shale gas is and how it may be extracted and elaborates on terminology that the industry is using. The chapter focuses on shale gas extraction because shale gas has the biggest potential of all ‘unconventionals’³¹ to become commercially viable in Europe in the middle to long-term.³²

After establishing potential environmental threats and energy security benefits of shale gas extraction, Chapter 2 investigates the legal framework that applies to shale gas extraction. The chapter focuses on the EU level and exposes a number of gaps and uncertainties in the primary and secondary law framework. This is followed by a critical assessment of the European Commission’s recent efforts to close these gaps with a shale gas specific recommendation and guiding documents. The chapter concludes that these EU measures are not legally binding, so that the development of new, shale gas specific legislation is largely left to the discretion of EU Member States.

Chapter 3 provides an overview of shale gas regulation in EU Member States. It takes a closer look at three jurisdictions, France, Germany and the UK. They are representing the three different approaches to shale gas regulation that are currently dominating in Europe – strictly prohibitive, mainly prohibitive and cautious but permissive regulation. The chapter discusses advantages and disadvantages of these approaches. It shows that strictly prohibitive shale gas regulation is not the most commendable option for governing this activity. Instead, cautious, but permissive regulation would be better suited to govern shale gas extraction in a sound way.

The second part of the book, consisting of Chapters 4, 5 and 6, is looking beyond the status quo and discusses future regulation. Its purpose is to demonstrate a legally sound way to administer shale gas extraction. This part develops a particular and new methodology for energy regulation and uses shale gas as a case study. The new methodology is called

³⁰ Although in this case it would be more apt to speak of a ‘quasi-constitution’ since the Treaty of Lisbon is the result of a failed attempt to draw-up a European Constitution in 2005, see Craig/De Burca 23, 25 and 75.

³¹ For the terminology see Chapter 1 below.

³² Commission Shale Gas Communication 3.

trias, as it consists of three types of legal norms: objectives,³³ principles³⁴ and rules.³⁵

The trias methodology shows that the development of prudent energy regulation must take, rather abstract, constitutional objectives as the starting point, translate them into more clearly defined law principles, which in turn may then be translated into concrete rules. All three categories of norms – objectives, principles and rules – represent gradations of one legal thought and are interlinked with each other.

Concrete stipulations for legally sound³⁶ shale gas regulation can be deduced from all three steps. The resulting set of measures allows for cautious but permissive regulation of shale gas extraction, which reconciles environmental protection interests with energy security aspects. Such regulation is in line with legal prerequisites – a hurdle that strictly prohibitive shale gas regulation is not able to overcome.

To explain the three aspects of the trias in more detail, Chapter 4 zooms in on its first level, (quasi-) constitutional objectives. The chapter highlights that several constitutional objectives might conflict with each other, when regulating an energy activity like shale gas extraction. The legal nature of environmental protection and energy security as (quasi-) constitutional objectives is established by examination of EU quasi-constitutional documents and the constitutions of Germany and France.³⁷

Afterwards, the chapter focuses on the competition between the two (quasi-) constitutional objectives of environmental protection and energy security in the case of shale gas extraction. Constitutional law theory provides a mechanism called practical concordance to reconcile competing constitutional objectives. The chapter concludes that this mechanism can be used in various jurisdictions. The mechanism could help the regulator in achieving legally sound energy regulation.

Chapter 5 further follows the structure of the trias and investigates its second level, legal principles. It establishes five (environmental) law principles as most relevant to shale gas extraction, namely the precautionary/prevention principle, the polluter pays principle and the principles of

³³ (Quasi-) constitutional objectives, see Chapter 4 below.

³⁴ Principles of law, see Chapter 5 below.

³⁵ Rules on the regulation of an existing, comparable technology, see Chapter 6 below.

³⁶ Legally sound in this book is to be understood as complying, to the greatest possible extent, with constitutional objectives, law principles and pre-existing rules.

³⁷ The UK does not have a written constitution and is therefore omitted in that particular examination, see Chapter 6 below.

sustainable development, public participation and rectification at source. The chapter highlights how each of these principles can be translated into a concrete feature of cautious, but permissive shale gas regulation.

Chapter 6 addresses the third level of the trias, concrete rules. It draws analogies with the regulation of another energy technology, Carbon Capture and Storage (hereinafter: CCS). CCS has certain similarities to shale gas extraction in terms of the technology used and its potential threats.³⁸ The EU CCS Directive, as well as national CCS regulations in France, Germany and the UK, are scrutinized to see how particular problems have been tackled in CCS regulation. The chapter concludes that remaining gaps in the regulatory framework for shale gas extraction could be closed by *mutatis mutandis* application of some of the mechanisms used in French, German and UK CCS regulation.

The book concludes with a third part that consists of Chapter 7. It outlines two main results. The first is that cautious, but permissive shale gas regulation complies best with the relevant (quasi-) constitutional objectives. Strictly prohibitive shale gas regulation, by contrast, is hard to reconcile with constitutional law pre-requisites.

The second result is the new trias methodology. Its advantages and setbacks are discussed in these conclusions which show that the trias transcends the context of shale gas extraction. It can be used to develop regulatory regimes throughout the extractive industry and in the renewables sector. It could also facilitate the elaboration of a regulatory framework for non-producing parts of the energy sector.³⁹ Since energy law is a very young discipline that has to keep up with rapid technological developments,⁴⁰ a consistent methodology to develop regulations for all sorts of new and emerging energy technologies is in increasing demand.

³⁸ See Chapter 6 below.

³⁹ For more on that see Chapter 7 below.

⁴⁰ Adrian J Bradbrook 'Energy Law as an Academic Discipline' (1996) Vol 14 No 2 *Journal of Energy & Natural Resources Law* 193–217.