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Adoption of legislation on shale gas in France: hesitation and/or progress?

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Summary

This paper provides a chronological account of the eventful adoption of France's first law on shale gas. This governance issue calls into question the implementation of environmental principles, such as the principles of prevention, public information and participation, which were constitutionalized in the 2005 Environmental Charter. The hesitations of the French government illustrate the management difficulties at the state level with regards to new unconventional hydrocarbons that have a particular impact on the environment. On 13th July 2011, the legislator adopted a law that prohibited the use of hydraulic fracturing for the prospection of shale gas and oil. Although this represents a world first, it was designed hastily and has failed to satisfy any of the stakeholders involved. We examine the chronology of events, with particular focus on the chaotic governmental and legislative responses to public pressure on an unprecedented scale.

The presence of natural gas reserves has been known for over two centuries: the first wells were drilled in the United States in 1821 and the first gas company was founded in 1858. Conventional hydrocarbons (gas or crude oil) are extracted by means of a borehole made through porous and permeable rock; while unconventional hydrocarbons, which include shale oil, are derived from hydrocarbon bedrock dispersed among non-porous rock formations that have to be fractured in order for the gas to be extracted¹. Generally, these shale oils are located between 1,000 and 3,000 metres below the surface. Due to such depths, the successful exploitation of unconventional gas and oil requires both horizontal drilling accompanied by hydraulic fracturing². Through this process, shale oil and gas are made to rise to the surface through steel tubing.

The first extraction of shale oil and gas via the process of hydraulic fracturing was carried out in the 1940s. However, it was not until the 2000s that this technique became competitive with the advent of a horizontal drilling process established by Devon Energy. Since then, the extraction of shale gas has undergone considerable growth in the United States, rising from 1% to 15% of the total production of gas, with an annual growth rate of 15%. Each year, approximately 20,000 wells are drilled in the United States. This contrasts with the situation on the European continent, where the potential of such resources, which are now technically exploitable, has only recently been discovered. France has one of the largest shale gas and oil reserves in Europe, with approximately 5 trillion cubic metres of technically recoverable shale gas.

These energy resources have immense potential, both in terms of global reserves, which could be four times greater than conventional gas resources, and in terms of the energy mix. Indeed, states are increasingly prioritizing the need for “*energy transition*”, due to the major increase in oil and gas prices but also because of the requirements of the global polices on reducing

¹ See definition from the CGIET and CGEDD report, *Les hydrocarbures de roche-mère en France*, (April 2011), p. 4. http://www.developpement-durable.gouv.fr/IMG/pdf/Rapport_provisoire_sans_annexe.pdf

² Hydraulic fracturing is the process by which a liquid under pressure causes a geological formation to crack open.

greenhouse gas (GHG) emissions. However, despite this great potential, it should not be forgotten that serious environmental impacts have been observed in the United States since the intensive extraction of shale gas began; these impacts attracted considerable media attention following the release of Josh Fox's documentary film "*Gasland*". Now, after ten years of experience with the technique of horizontal hydraulic fracturing ("*fracking*") and its large-scale usage, we are in a position to make an assessment of the environmental impacts of shale oil extraction. An initial study dated from June 2011³, performed at the request of the European Commission's DG Environment, highlighted the severity of the impacts from shale oil exploitation. In September 2012, the European Commission published two shale gas studies, the first entitled: "*Support to the identification of potential risks for the environment and human health arising from hydrocarbons operations involving hydraulic fracturing in Europe*"⁴, and the second: "*Climate Impact of Potential Shale Gas Production in the EU*". These studies represent a significant step forward in the development of regulatory shale gas policy in Europe.

The French approach to shale gas exploration and exploitation has been particularly revealing in terms of the crystallization of multiple issues, including environmental, sanitary, energy, economical, territorial, geopolitical and legal concerns. This article aims to show the chronology of the rather chaotic process that led to the implementation of France's first legislation on shale oil, raising questions on the governmental and legislative approach⁵, in particular with regards to the still pending legal questions about French environmental constitutional law. For instance, at the beginning of 2011, the French state, through its official government statements, demonstrated inconsistencies in its management of the authorization of shale oil and gas exploitation. It was caught between the need for new energy resources and worries over the associated environmental impacts (I). The resultant French law that was adopted in July 2011 answers certain questions but was loaded with ambiguities and deficiencies (II).

I/ The energy resource that's a double-edged sword for the French state: from high economic potential to serious environmental impacts

We examine the importance of this resource as an economic issue, taking into account the multiple environmental impacts that have been identified from the experience in the United States and looking at the specificity of its regulatory system.

Economic potential and energy independence

³ DIRECTORATE GENERAL FOR INTERNAL POLICIES, [*Impacts of shale gas and shale oil extraction on the environment and on human health*](#), Policy department A, economic and scientific policy, European Parliament, June 2011, 91 p.

⁴ AEA for European Commission, *Support to the identification of potential risks for the environment and human health arising from hydrocarbons operations involving hydraulic fracturing in Europe*, (author: Dr Mark Broomfield), 10 August 2012, 07.0307/ENV.C.1/2011/604781/ENV.F1, 292 p. <http://ec.europa.eu/environment/integration/energy/pdf/fracking%20study.pdf>. AEA for European Commission, *Climate Impact of Potential Shale Gas Production in the EU*, (compiled by Daniel Forster and Jonathan Perks), 30 July 2012, CLIMA.C.1./ETU/2011/0039r, 158 p. http://ec.europa.eu/clima/policies/eccp/docs/120815_final_report_en.pdf

⁵ See the analysis of P. BILLET, 'Recherche et exploitation du gaz de schiste : les incertitudes et demi-mesures d'une loi', [2011] *Environment Review*, No. 11, November (Study 11).

Firstly, the important economic potential of the resource should be noted. Events in the United States have shown that there is a huge market for shale gas, both currently and for the future, which is controlled by the biggest multinational oil companies: the “*supermajors*” such as Total, Reliance, Shell, ExxonMobil and Haliburton. As an example of supermajor control, the American Schuepbach Energy LLC in consortium with Suez-Gaz de France is prospecting the French market in order to explore the potential of shale oil in the south of France.

Secondly, according to international energy projections, a considerable increase in world consumption is clearly anticipated over the next twenty years and renewable energy does not yet provide sufficient capacity to meet this future demand. France only has about sixty oil and gas fields, which provide for between 1% and 2% of national consumption, a proportion that is continuing to decrease. Due to this high dependency on oil and gas, it is understandable that the potential offered by shale oil and gas represents an “*energy Eldorado*”⁶ for France in terms of independence and energy security. Two French territories, the Paris Basin and the Southeast or Causses Cevennes Basin⁷, are particularly rich in hydrocarbons. It is estimated that 100 million cubic metres of technically exploitable shale oil and gas are present in the Paris Basin and 500 billion cubic metres in the south of France.

Certain groups, based on economic and energy data, have requested exploration permits on French subsoils for the extraction of shale gas. These permits have been granted by the French State. Jean-Louis Borloo, former French Minister for Ecology, Energy and Sustainable Development allotted three⁸ such permits according to the 1st March 2010 decree, which he later publicly regretted.

Exploration for purposes of shale gas exploitation is regulated by the system of exclusive permits defined by the Article L. 162-1 of the new Mining Code⁹, which stipulates that all survey work is subject to compulsory declaration or authorization, depending on the level of environmental impact. However, the 2nd June 2006 decree¹⁰ on mining and storage states that hydrocarbon exploration works are subject to the least binding regime (declaration). Each request for an exclusive permit for shale oil or gas exploration must be accompanied by a specific technical memorandum, a process works programme, a financial commitment with detailed cartographic documents and an impact assessment indicating the potential environmental impacts of the proposed work. Such requests are sent to the French Minister for Mining, who has the authority to grant permits following consultations with the French Environmental Regional Directorate (DREAL) and the French Mines General Council. DREAL is responsible for ensuring that regulations are followed and for monitoring the conditions under which the surveying is carried out, having the authority to stop work if serious risks arise.

The granting of permits must be considered in the light of the French Energy Policy guidelines law of 13th July 2005 (POPE)¹¹. Article L 100-1 of the new Energy Code states that the French energy policy must guarantee “*the strategic independence and economic competitiveness of France. This policy aims to: ensure energy security; maintain a*

⁶ P. BILLET, ‘Le nouveau code minier et l’exploitation du gaz de schiste’, [2011], JCP Administrations - Collectivités territoriales Review, No 2168.

⁷ Aveyron, Drôme, Hérault, Gard, Ardèche.

⁸ Three Permits for shale oil were delivered to the companies Total E&P France in *Montélimar*, to Devon Energy *Montélimar SAS in Villeneuve de Berg* and to the company Schuepbach Energy LLC and GDF-Suez in *Nant*. See the French permits map: http://www.developpement-durable.gouv.fr/IMG/pdf/Gaz_de_schiste_dans_le_sud_est.pdf

⁹ Ordinance No 2011-91 of 20th January 2011 on the codification of the legal aspects of the Mining Code, *JORF* 25th January 2011.

¹⁰ No. 2006-649.

¹¹ Law n° 2005-781, 13th July 2005 defining orientations for energy policy, *JORF* n°163 du 14 July 2005, p. 11570.

competitive energy price; protect human health and the environment, prevent aggravation of the greenhouse gas effect; guarantee social and territorial cohesion by ensuring energy access for all.” The French legislator underlines the importance of finding a balance between energy independence and the protection of the environment and human health. It is the subtle balance of these objectives that must guide governmental action when making political choices on whether or not to commit to shale oil exploration and exploitation. In addition, this balancing act must take into account EU commitments, particularly the numerous objectives of the Climate and Energy package, such as the “*energy mix*” policy: the “*3x20*”¹² targets for 2020 that came into effect on 25th June 2009. Shale gas and oil now constitute a crucial European geo-political issue, particularly regarding the clear ambitions of certain countries such as Poland (competitiveness and energy independence). Will the EU manage to speak with one voice about shale gas? Nuclear power, shale gas and oil were at the centre of the debates that started at the European Council on 4th February 2011, between the governments of the 27 EU Member States. A new idea emerged from the conclusions of this summit, that an assessment should be conducted into the potential of this resource at the European level¹³. Then, in September 2011, the European Energy Commissioner, Günther Oettinger, said that he was very favourable towards shale gas and oil exploitation, while Connie Hedegaard, the EU’s Commissioner for Climate Action, was more measured but nevertheless thought that the EU “could not afford to say no” to a technology that is still at a very early stage of development, stressing that some technical challenges have to be overcome before wide scale exploitation can go ahead¹⁴. In response to challenges from some Members of European Parliament (MEPs), the commissioners Janez Potočnik, Günther H. Oettinger and Connie Hedegaard¹⁵ considered the establishment of a European moratorium to be disproportionate, highlighting that Article 194 §2 of the Treaty on the functioning of the European Union (TFEU) gives each Member State the right to determine the conditions for the exploitation of energy resources, so long as environmental concerns are taken into account (Article 194 §1 of the TFEU). Then in January 2012, based on a study commissioned by the Directorate General for Energy, Günther Oettinger announced that there was no immediate need to change EU legislation. Discussions at the European Parliament were particularly tense in April 2012 following two citizen petitions against the exploitation of shale gas, from Bulgaria and Poland, along with a draft report on shale gas from Boguslaw Sonik, a Polish MEP, that was presented to the Parliament’s environment committee. However, according to a study¹⁶ from the Centre for Strategic Analysis, Statoil, ExxonMobil, GDF-SUEZ, Total, Vermilion, Repsol, Schlumberger and Bayerngas have already started a European research programme entitled “*Gas Shales in Europe*” (GASH). In May 2009, the mapping of European resources was initiated to compile the existing geological data, along with a survey of the economic conditions of extraction.

In the current context of international negotiations on the fight against climate change, shale gas or oil exploitation is sometimes presented as a policy of GHG reduction. However, it seems that extraction, production and also transport, generate high methane emissions which

¹² In 2007, the European Council adopted ambitious energy and climate change objectives for 2020: reduce emissions of greenhouse gas emissions by 20% or even 30% if conditions allow, increase the share of renewable energy resources to 20% and improving energy efficiency by 20%. See Communication from the Commission, Energy 2020, A Strategy for competitive, sustainable and secure energy, 2010.

¹³ European Council, Conclusions on Energy, 4th February 2011, EUCO 2/1/11 REV 1, http://www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/en/ec/119141.pdf

¹⁴ <http://www.euractiv.fr/gaz-schiste-invite-debat-europeen-article>

¹⁵ <http://frackingfreireland.org/wp-content/uploads/2011/10/2011-07-22-MEPs-shale-gas1.pdf>

¹⁶ CAS, *Les gaz non conventionnels : une révolution énergétique nord-américaine non sans conséquences pour l’Europe*, No 215, (March 2011), <http://www.strategie.gouv.fr/content/note-d%E2%80%99analyse-215-les-gaz-non-conventionnels-une-revolution-energetique-nord-americaine-non>

have much greater effects on climate warming than carbon dioxide. The long-term benefit of this resource in terms of GHG reduction has yet to be demonstrated¹⁷. The decision on whether or not to exploit shale gas must take into account the objectives of GHG reduction that have been laid down in various texts: the “*Post Kyoto*” action plan, the Climate and Energy package, the Energy Roadmap 2050¹⁸; and the French “*Grenelle de l’environnement*” laws of 3rd August 2009 and 12th July 2010¹⁹. Thus, on 4th October 2011, in the framework on the European policy on fuels (the directive on fuel quality²⁰ and GHG reduction), the European Commission proposed the revaluation of GHG emissions from various fuels including bituminous sand and shale oil by attributing higher values of GHG emissions. It was a first indication that the European Commission was seeking to restrict certain European states in their exploitation of shale gas, which is understood to be harmful to the environment and human health.

Finally, the latest AEA study conducted for the European Commission, which analyses the efficiency and effectiveness of current EU legislation, draws three categories of conclusions with regard to the potential inadequacies in the ways that risks are addressed by EU legislation: “1) *Inadequacies in EU legislation that could lead to risks to the environment or human health not being sufficiently addressed. (2) Potential inadequacies - uncertainties in the applicability of EU legislation: the potential for risks to be insufficiently addressed by EU legislation, where uncertainty arises because of lack of information regarding the characteristics of HVHF projects. (3) Potential inadequacies - uncertainties in the existence of appropriate requirements at national level: for aspects relying on a high degree of Member State decision-making it is not possible to conclude whether or not at EU level the risks are adequately addressed*”²¹.

Serious impacts on the environment and human health from the perspective of French legislation

The extensive exploitation of shale gas and oil initially has serious consequences in the mine site vicinity: landscape is highly degraded by the establishment of the infrastructure necessary for the extraction process and the construction of wells (warehouses, trucks, urbanization, storage facilities, etc). According to United States legislation, the landowner is also the owner of the subsoil. Consequently, oil companies negotiate directly with private landowners, exchanging large sums of money for exploitation rights. In this way, clusters of wells were rapidly developed in Pennsylvania and Texas. In France, however, mining deposits in the subsoil²² “belong” to the State and not to the landowner, thus constituting an exception to the

¹⁷ See study <http://www.tyndall.ac.uk/shalegasreport> and AEA for European Commission, *Climate Impact of Potential Shale Gas Production in the EU*, op. cit.

¹⁸ Adopted by the Commission in December 2011 http://ec.europa.eu/energy/energy2020/roadmap/doc/com_2011_8852_en.pdf

¹⁹ <http://www.legrenelle-environnement.fr/>

²⁰ Directive 2009/30/EC of the European Parliament and the Council of 23 April 2009 amending Directive 98/70/EC as regards the specification of petrol, diesel and gas-oil and introducing a mechanism to monitor and reduce greenhouse gas emissions and amending Council Directive 1999/32/EC as regards the specification of fuel used by inland waterway vessels and repealing Directive 93/12/EEC, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0088:0113:EN:PDF>

²¹ AEA for European Commission, *Support to the identification of potential risks for the environment and human health arising from hydrocarbons operations involving hydraulic fracturing in Europe*, op. cit., pp. 75-119.

²² See PhD of P. BILLET, *La protection juridique du sous-sol en droit français*, Lyon 3, (1994). For more historic information on the Mining Code see page 37 to 64 of Report *Droit minier et droit de l’environnement, Éléments de réflexion pour une réforme relative à l’évaluation environnementale, à l’information et à la participation du public*, (2011) of A. GOSSEMENT, filed to Mrs Nathalie Kosciusko-Morizet, French Minister

552-article Civil code. Hence, only the State and its administration can grant a permit and an exploitation authorization (for a description of the procedure, see for example Boris Martor, Raphaël Chétrit and Pascal Baylocq's article²³). If widespread shale gas exploitation was to be conducted in France, it can be safely assumed that the regulatory system would enable the better control of well multiplication; but questions regarding the major impacts on the landscape, the damage inflicted on biodiversity and the conflicts over land usage would remain legitimate, particularly because of the localized nature of shale gas and oil in France. According to Jean-Louis Joseph²⁴, French President of the Regional Natural Parks Federation, shale gas exploration would affect seven regional parks. Moreover, in June 2011, a report by French parliamentarians²⁵ raised questions regarding soil and subsoil exploitation in a number of basins in France and its incompatibility with regulations in protected areas, such as National Parks, UNESCO territories and Natura 2000 areas. Certain parliamentarians have also recommended that mining legislation should prohibit²⁶ the mining of resources within these territories, and also called for the necessary legal reform regarding environmental "negative externalities"²⁷ resulting from exploitation (noise and other nuisances, urbanization, visual impacts and usage conflicts). The French sites in question are rural areas with high biodiversity that must be preserved. The economy of these regions has developed on the basis of green tourism and sustainable agriculture and therefore the land use conflicts with shale oil exploitation will be obvious.

Moreover, the pollution of underground water and soil (resulting from the possibility of cracks in the wells) is a principal concern because of the necessary use of "chemical additives" in hydraulic fracturing. Indeed, many products, known as "stimulation fluids"²⁸ (graded sand, detergents, lubricants and biocides) are essential to improve the effectiveness of hydraulic fracturing and to increase the flow of oil and gas to the surface. Such a cocktail of products could contaminate entire ecosystems (water, ground, subsoil and air). There are different regulatory systems to control these products in the United States compared to France and the EU²⁹. The "REACH" EU regulation (18th December 2006) enabled the implementation of a procedure to record, evaluate and authorize chemical substances that have been imported or manufactured in the EU. The cost associated with the risk evaluation of a substance has to be met by the company that manufactures, uses or exports the product³⁰. The European Chemicals Agency (ECHA) will be responsible for the authorization of products to be used for hydraulic fracturing. Janez Potočnik, Günther H. Oettinger and Connie Hedegaard³¹ have recently stated that, following the request of the European Commission, the

for Ecology, Energy, and Sustainable Development, 12th October 2011, 374 p. <http://lesrapports.ladocumentationfrancaise.fr/BRP/114000612/0000.pdf>

²³ B. MARTOR, R. CHETRIT AND P. BAYLOCQ, 'Exploration des hydrocarbures de schiste : le régime juridique de la fracturation hydraulique en question', [2011], Environnement Review, No 11, November (Study 12). B. MARTOR AND R. CHETRIT, 'Réflexions sur le régime d'exploration à l'occasion du débat relatif aux gaz et huiles de schiste', [2011], JCP Administrations et collectivités territoriales, n°22, 30, May, at No 2195.

²⁴ See interview: <http://www.actu-environnement.com/ae/news/jean-louis-joseph-parcs-naturels-regionaux-13735.php4>

²⁵ Information Report presented by F.-M. GONNOT and P. MARTIN, 8 June 2011. <http://www.assemblee-nationale.fr/13/rap-info/i3517.asp>

²⁶ *Ibid.*, p. 42.

²⁷ *Ibid.*, p. 48.

²⁸ On 18 April 2011, a report by the US House of Representatives confirmed that U.S. operations used between 2005 and 2009 more than 2,500 products and 750 different components, some particularly dangerous to human health.

²⁹ J.-N. JOUZEL and P. LASCOUMES, 'Le règlement REACH : une politique européenne de l'incertain. Un détour de régulation pour la gestion des risques chimiques' [1/2011] Politique européenne, (No 33), at pp. 185-214. URL : www.cairn.info/revue-politique-europeenne-2011-1-page-185.htm.

³⁰ Article L 521-5 of the French Environmental Code.

³¹ <http://frackingfreireland.org/wp-content/uploads/2011/10/2011-07-22-MEPs-shale-gas1.pdf>

ECHA was currently reviewing the registration files of hydraulic fracturing chemical products and thus will evaluate risk recommendations and public information for these products. Boris Martor, Raphaël Chétrit and Pascal Baylocq (gas and oil company representatives)³² have emphasized that much fewer chemical products are used today compared to ten years ago, depending on the type of subsoil exploited and on geological knowledge. Some of these substances can already be detected in food products, and there remain many questions regarding the toxicity, reactivity and quantities of these products. Karl Falkenberg (Chief executive officer of the EC's DG Environment) estimated that the European REACH regulations would probably limit the use of these substances. Consequently, there is a clear emphasis on the need to increase our understanding of these chemicals and their persistency, taking into consideration their environmental and health impacts. The United States has industrial and commercial laws that allow the formulas, compositional data and quantities of these products to be kept secret. Similarly, the French regulatory framework allows a company to submit a confidentiality request to limit the communication of product information for the purposes of industrial or commercial secrecy. However, this can be nuanced with regards to the objectives of the 28th January 2003 Directive, concerning public access to information on the environment³³ and to Article L 522-12 of the French Environmental Code, which mentions information that does not fall under the classification of industrial and commercial secrecy. In their study, the authors conclude that: *“while there exists protection of the secrecy of the formulae of chemicals used in hydraulic fracturing, it is only relative according to the appreciation of the national administrative authority or an administrative authority of another Member State or the European Agency of chemical products”*³⁴. The right of public access to environmental information is from now on guaranteed by the French Constitution, the Convention of Aarhus and Directive 2003/4/EC, raising the question of how these regulations would apply to the disclosure of information on products used in hydraulic fracturing. In this sense, in June 2011 the elected officials François-Michel Gonnnot and Philippe Martin (PS) expressed in their report³⁵ that *“the communication of the composition of fracking fluids constitutes a prerequisite to the opening of a debate on the appropriateness of the exploitation of gases and shale oil.”* They suggest, *“that a list of authorized products that have been subject to preliminary risk studies should be drawn up by the public authorities – the National Agency of Public Health, Food, Environment and Work (ANSES); the Office of Geological and Mining Research (BRGM) or an ad hoc committee”*. While the CGIET and CGEDD have recommended that, should France proceed with the controlled exploitation of shale gas, a *“national Scientific committee, composed of experts from BRGM, IFPEN, INERIS and academics, including those from abroad, should be established to guarantee the quality and transparency of the studies and research considered above, in particular regarding geological and hydrogeologic investigations, as well as the evaluation of environmental risks related to exploration work (...)”*.

Lastly, concerns have been raised about the high water consumption associated with fracking (more than 15,000 to 20,000 m³ per well). Also, there have been cases of surface accidents and earthquakes³⁶ related to the technique of causing explosions in the bedrock. With regard to the latter, the United States Environmental Protection Agency (EPA) have informed French

³² B. MARTOR, R. CHÉTRIT AND P. BAYLOCQ, *op. cit.*

³³ Directive 2003/4/EC of the European Parliament and of the council of 28 January 2003 on public access to environmental information and repealing Council Directive 90/313/EEC.

³⁴ B. MARTOR, R. CHÉTRIT AND P. BAYLOCQ, *op. cit.*

³⁵ F.-M. GONNOT and P. MARTIN, Report, 8 June 2011, *op. cit.*, p. 50 et 51.

³⁶ In England, shale gas drilling has caused earthquakes, hydraulic fracturing operations are very probably at the origin of tremors in April and May 2011. See French media: <http://www.liberation.fr/terre/01012369198-en-angleterre-des-forages-de-gaz-de-schiste-auraient-provoque-des-secousses-telluriques>

officials that “*the abnormally high level of seismic activity in the State of Arkansas - 700 earthquakes recorded in six months - could result from an embrittlement of the basement caused by the oil industry*”³⁷.

The past experience of the United States raises great doubts about France’s future management of permits, even if the French regulatory system could probably avoid certain problems. While the French system is far from being a panacea, the considerable momentum generated around shale gas and oil has accelerated the reform proposals of the Mining Code (see *infra*) to improve the regulations related to gas exploitation, to reinforce monitoring agencies and to improve the dissemination of information to local authorities and the public, etc. The cost/benefits analysis of shale gas exploitation must be carried out by the State, taking into consideration the various environmental and health elements. Throughout 2011, the government’s management of the issue revealed the difficulty of striking a balance between all concerns, especially since the process of hydraulic fracturing is far from gaining public approval, particularly due to the fact that the populations directly affected are highly mobilized (see *infra*).

It is in this economic, energetic, health and environmental context, that the French government began to make its hesitant policy decisions.

II/ Inconsistencies in the French management of exclusive shale gas research permits

The prohibition of hydraulic fracturing was eventually written into the law books. This ban is analyzed below in terms of the right to information and public participation.

The chronology of a ban

It was three exclusive research permits (Villeneuve de Berg, Nant and Montelimar), which explicitly included shale gas exploration projects, that crystallized governmental procrastination. These permits were granted by Mr Borloo on 1st March 2010, covering an area of 9672 km² for periods of three to five years. However, the government was hesitant in its actions due to rising protests and increasing public mobilization in the affected areas. The following year was to be marked by a series of events and contradictory actions.

Government action on shale gas began on 4th February 2011 with the launch of a study mission and joint CGIET and CGEDD analysis, requested by the French ministers for Sustainable Development and for the Economy, Finance and Industry. This study was intended to advise the Government on “*the potential challenges of development for these resources, the environmental guidelines appropriate for this possible development and the priority of action*”. Then, on 15th February 2011, the elected officials Pierre Morel A L’Huissier (UMP, Lozère) and Pascal Terrasse (SRC, Ardèche) announced their intention to create a monitoring and precautionary committee on shale gas.

On 11th March 2011, following the launch of the study, the Prime Minister declared a moratorium on shale gas exploration, stating that petroleum companies would have to prove that their extraction techniques did not have an environmental impact. Under this moratorium, the French government suspended the granting of exclusive shale gas exploration permits. The Prime Minister requested his Home Office to take “*any administrative measures*” necessary to prevent all shale gas drilling activities. As underlined by Philippe Billet, one could question the motivation and nature of this request, “*since the procedure which he*

³⁷ Cited by F.-M. GONNOT and P. MARTIN, Report, 8 June 2011, *op. cit.*, p. 62: EPA, *Draft Plan to Study the Potential Impacts of Hydraulic Fracturing on Drinking Water Resources*, (February 2011), 126 p.

wanted to implement is unknown in the Mining Code, in its old version as well as the new one”³⁸.

On 21st April 2011, the progress report of the CGIET & CGEDD study was submitted to the government. It underlined that it would be detrimental to the national economy and to employment if France refrained, without trying to anticipate the action it intends to take, from carrying out an in depth assessment into the potential wealth generated by shale gas exploitation: the acceptance to remain in ignorance of such potential would not be consistent with the objectives of the POPE Law and nor with the precautionary principle. For this to be achieved, research work and exploration tests would be necessary³⁹. The study found in favour of further exploration but called for strict monitoring. The report suggested that possible exploitation should adhere to four principles: 1 / Launching of a programme of scientific research on hydraulic fracturing techniques and their impacts; 2 / Improving scientific knowledge on the effects of activities on aquifers; 3 / Promoting the implementation of a limited number of experimental wells; and 4 / Contributing to the emergence and training of operators and national subcontractors likely to position themselves on the global market⁴⁰. Nevertheless, after this report had been submitted, the Prime Minister decided to order the cessation of all hydraulic fracturing operations and to abandon the technology. On 13th April 2011, the Minister of Economy, Christine Lagarde, proposed to the Council of Ministers that the Mining Code should be reformed with the objective of integrating new public consultation procedures upstream of the delivery of prospection permits for mining. Indeed, the obsolescence of this legislation as regards the prevention of risks to the environment and health was demonstrated by the lawyer Arnaud Gossement, who was appointed by Nathalie Kosciusko-Morizet, the Minister for Sustainable Development, to address this issue. On 12th October 2011, he presented his report⁴¹ on the links between mining and environmental legislation, but also on the evaluation of the ecological impacts of mining activities, the right to information and public participation. The report contained 40 proposals, including: a reinforcement of public participation in the granting of mining permits (e.g. in regards to the request for exclusive research permits); the creation of a mining resources high council; the reinforcement of the environmental evaluation of drilling projects; and the development of educational, research and public information on mining.

The moratorium was extended until the end of June 2011 and the legislator took control with the support of the Prime Minister. But which law? A plethora of proposals⁴² and information reports⁴³ were filled during this period. Elected officials - with opposing positions - expressed serious doubts about the exploitation of this resource in the conclusions of their reports. Philippe Billet summarised the intense debates into three scenarios⁴⁴. A first scenario, which one could describe as “energetic”, consisted in going ahead with the exploitation of shale gas along with Mining Code reform, while reducing as much as possible the major impacts on the environment. A second scenario involved a patrimonial approach to the management of the resource, enabling an easily exploitable energy resource to be kept available, allowing the

³⁸ P. BILLET, *Op. cit.*, [2011], JCP Administrations - Collectivités territoriales Review, No 2168.

³⁹ CGIET and CGEDD, *op. cit.*

⁴⁰ *Ibid.*

⁴¹ A. GOSSEMENT, Report, *op. cit.*

⁴² Text No 377 [2010-2011] of N. BRICQ, D. GUILLAUME, M. TESTON, S. SUTOUR, A. FAUCONNIER, 24 March 2011; Doc. AN No 3283, 30 March 2011, Law Proposal of J.-M. AYRAULT; Text No 3301 of C. JACOB, 31 March 2011, Text No 417 [2010-2011] of M. HOUEL, Senate 7 April 2011; Doc. AN, 13 April 2011, No 3357 - Law Proposal of J.-L. BORLOO.

⁴³ Deputies Report No 3392, M. HAVARD and J.-P. CHANTEGUER of the Commission on Sustainable Development and Spatial Planning, 4 May 2011. Report No 556 [2010-2011] of M. HOUEL, 25 May 2011. Report No 640 [2010-2011] of M. HOUEL, M. HAVARD, 15 June 2011.

⁴⁴ P. BILLET, *op. cit.* [2011], Environnement n° 11.

possibility to decide on exploitation at a later date. A third scenario was to abandon this resource and instead invest in renewable and carbon neutral energies.

After lengthy discussions, the legislator urgently adopted law No. 2011-835 of 13th July 2011, which aimed to prohibit exploration and exploitation of liquid or gas hydrocarbon mines by hydraulic fracturing and to repeal the exclusive research permits of projects that employ the technique.

France had then become the first country in the world to formally prohibit⁴⁵ hydraulic fracturing on its territory. However, the relevant legislation can at best be described as ambiguous.

An ambiguous law

Eager to obtain a consensus, the legislator did not explicitly reference the precautionary principle although a number of elected officials including the Prime Minister himself had proposed its inclusion. The first Article of this Act refers both to the constitutional text of the 2004 French Environmental Charter and to the prevention and correction principle of Article L 110-1 of the Environmental Code. Given such references, it is reasonable to assume that this text endorses the prevention principle, without completely closing the door to the precautionary principle. These two principles can justify the prohibition on French territory of “*exploration and exploitation of shale gas by hydraulic fracturing*”. It is clear that the legislator has chosen to prohibit only an extraction technique (hydraulic fracturing) and not the resource itself (the non-conventional gas). Contrary to popular belief, this text does not therefore explicitly prohibit the exploration and exploitation of shale gas. With only this single technique prohibited, the law does not exclude the extraction of shale gas by other (cleaner?) processes. Other techniques are being tested in the United States⁴⁶ such as “*pneumatic fracturing*”, which is based on the injection of compressed air or gel propane into the bedrock to alter or fracture it. In his report⁴⁷ to the Minister of Sustainable Development, the supermajor Total mentions current research on electrical fracturing. This “*compromise legislation or midline approach*” does nothing to satisfy any of the major stakeholders: Total and other petroleum companies are disappointed by the ban as it stops their experimental work, while environmental NGOs envisage that exploitation of the resource will go ahead regardless, by the use of alternative processes. There is nothing specific in the text on the description of the technique, which is left open to the conflicting interpretations of experts. The presence of this technical ambiguity in the legal text has not escaped the attention of shale gas opponents, who stress that it will be difficult to know what criteria the administration will use to evaluate whether or not this technique is actually used. Neither does the text satisfy the government’s opposition which, after the law had been adopted, unsuccessfully proposed its reformulation. Socialist Party parliamentarians wanted unambiguous⁴⁸ clarification of what exploration and exploitation techniques exactly had been banned, and also wanted a better definition of the concept of non-conventional hydrocarbons⁴⁹. Indeed, the new Mining Code does not yet define what type of gases and oils it refers to, and neither is it precise about terms such as “*liquid, liquefied or gaseous hydrocarbons*” or “*oil on land or at sea*”. Article 2 of the law has created a National

⁴⁵ Bulgaria has become the second European country after France to ban exploratory drilling for shale gas using hydraulic fracturing.

⁴⁶ Law Proposal, 13 July 2011, No 3690, p. 4.

⁴⁷ See Report of TOTAL, September 2011. <http://www.developpement-durable.gouv.fr/IMG/pdf/625.pdf>

⁴⁸ Article 1 §1 of proposal: “exploration and exploitation of unconventional hydrocarbons are prohibited on national territory”, personal translation.

⁴⁹ Article 1 §2: “Unconventional hydrocarbons are: liquids or gases, which are trapped in the rock (...) or are present in a field located in deep waters (...)”.

Commission for guidance, monitoring and evaluation of exploration and exploitation techniques for liquid and gas hydrocarbons. This Commission is a type of specialized monitoring agency, which aims at assessing environmental risks of hydraulic fracturing or alternative techniques. It could issue public notices on the conditions by which experiments are carried out with the sole purpose of scientific research under public control. According to Arnaud Gossement, a new governance of mining seems essential, and fundamental reform is “*preferable to the proliferation of administrative boards, especially of committees with such a precise role - hydraulic fracturing – and that are probably limited in time.*”⁵⁰ The composition and functions of the National Commission’s guidance, monitoring and evaluation techniques for the exploration and exploitation of liquid and gaseous hydrocarbons have now been laid down by decree⁵¹ and it has been confirmed that the Commission’s activity will be limited. This Commission is diverse in its composition, gathering one deputy and one senator, state representatives, local authorities, NGOs, employers and employees of the companies concerned. Although this is a relatively pluralistic composition, which includes the five representatives of the “*Grenelle de l’environnement*” (State, local authorities, NGOs, employers and employees), it is however highly regrettable that the law does not insist on representatives of a monitoring agency or experts from ANSES, BRGM, IFPEN or INERIS. Article 3 sets out “*crisis exit*” instructions for companies in possession of exclusive research permits for liquid or gas hydrocarbon mining. These companies must submit a public report that specifies the techniques employed or considered within the framework of their research activities, and that this should be conducted over a period of two months with the administrative authority that granted the permit. In the absence of such a report, or if the report mentions the effective or possible recourse to drilling followed by hydraulic fracturing of the rock, the exclusive research licences concerned will be repealed. Finally, the text indicates that a penal sanction (one year imprisonment and €75,000 fine) will be applied in the event of drilling followed by the hydraulic fracturing of rock without having declared it to the administrative authority.

Subsequently, the Socialist Party⁵² bill called, unsuccessfully, for the abolition of exclusive licences with retroactive effect. By September 2011, the Head Office of Energy and Climate (DGEC) had received the reports on the issued permits. On 12th September 2011, the Total group, in regards to its Montélimar permit, carefully explained its intention to make exploratory studies to obtain data on the basement, which would not involve any hydraulic fracturing on the site. After this, Total envisaged that it would possibly commence a second phase of drilling intended to collect rock samples and conduct a test on production without hydraulic fracturing. On the basis of the 13th July 2011 law, and in view of the reports received, on 3rd October 2011 the French government repealed the three prospecting permits of the Total group and the American company Schuepbach (Nant, Villeneuve-de-Berg and Montélimar). The Minister for Ecology, said that: “*in the two reports from Schuepbach, the project explicitly mentioned the use of hydraulic fracturing. [In the Total report] it was not the case, [but] I put forward the argument that this report was not credible. (...) Total now claims it wants to look for conventional hydrocarbons, not shale gas, in a zone where the potential is very limited, while at the same time Total has not been interested in research for conventional hydrocarbons on French terrestrial territory for years*”. The observer may well be sceptical of the motivation behind this withdrawal of permits, and it reinforces the above-

⁵⁰ See <http://www.arnaudgossement.com/archive/2011/06/09/loi-sur-le-gaz-de-schiste-le-risque-du-droit-gazeux.html>

⁵¹ Decree No 2012-385 of 21 March 2012 on *Commission nationale d'orientation, de suivi et d'évaluation des techniques d'exploration et d'exploitation des hydrocarbures liquides et gazeux*, JORF No 70 of 22 March 2012 p. 5172.

⁵² Law proposal of J.-M. AYRAULT, No 3690, *op. cit.*

mentioned ambiguities within the law. In addition, as Philippe Billet correctly underlines, if the general and absolute prohibition of exploration and exploitation can be decided by the legislator as choice for society for the future, the abolition of the existing permits is more delicate as regards the compensation for the damage caused to permit holders. According to Billet, compensation can present “*certain difficulties taking into consideration European law and more specifically the case law of the European Court of Human Rights (ECtHR) on the equality principle*”⁵³. Through the Administrative Tribunal of Paris, Total appealed against the decision of the French State to repeal its exploration permit for shale gas in Montelimar. The other 61 permits issued were allowed to remain valid because, according to the Minister, “*the holders did not envisage seeking shale gas or oils, or abandoned the idea, limiting their activities to conventional fuels. All made the formal commitment not to resort to hydraulic fracturing*”. The prefectures will be responsible for checking that this commitment is adhered to when they study the work applications that the groups must submit before any action. The DREAL will carry out site inspections.

Lastly, Article 4 of the law states that the government “*as a regulating public power*” must be kept informed, by means of an annual report to Parliament, of developments in exploration and exploitation technologies and on knowledge of the French, European and international basement with regards to liquid or gas hydrocarbons; on the implementation conditions of experiments that were carried out for scientific purposes and under public control; and on the work of the National Commission of orientation, monitoring and evaluation. This Article makes it possible to instigate a type of annual monitoring which could, if necessary, either justify further prohibition for the following year or, on the contrary, support a controlled opening of shale gas exploitation. The initial report and the supplementary report entrusted to the CGIET and the CGEDD in August 2011 by the two Ministers, including details on the monitoring of the 2011 law, were released in February 2012⁵⁴.

The debate on the shale gas and oil exploration permits has brought to the fore the question of the public’s right to information and its participation.

The absence of information and public participation have been compensated for by strong mobilization

The right to information and participation is established in the constitution in Article 7 of the Environmental Charter and at the European and international level (by the above-mentioned 2003 Directive and in the 1998 Aarhus Convention ratified by France in 2002). The Mining Code does not call for public involvement at the time of the granting of permits, not even local communities. Indeed, the commencement of research work is subject to a declaration, together with a report that includes just one impact assessment. Article L 122-3 of the new Mining Code specifies explicitly that “*the exclusive research permit is granted, after a round of competition, by the relevant administrative authority for an initial duration of a maximum of five years. The examination of the application does not involve a public survey*”. This has not always been the case – prior to 1994, exclusive research permits were subject to such public approval. One can wonder about this deficiency, particularly in comparison with the 13th December 2011 Directive on the assessment of the effects of certain public and private projects on the environment⁵⁵. The Socialist Party proposal called for the requirement for a

⁵³ P. BILLET, *op. cit.*, [2011], JCP Administrations - Collectivités territoriales Review, No 2168.

⁵⁴ CGIET and CGEDD, Report, *Les hydrocarbures de roche-mère en France suite à la loi du 13 juillet 2011 créant la Commission nationale d'orientation, de suivi et d'évaluation des techniques d'exploration et d'exploitation des hydrocarbures liquides et gazeux*, February, (2012), 201 p.

⁵⁵ Directive 2011/92/EU of the European parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (codification), OJEU, 28.1.2012.

public survey and debate, prior to the issuing of exploration permits and experimental mining, to be included in the Environmental Code, as well as an impact study to evaluate the environmental and health effects of exploratory drilling. Overall, in the whole process of issuing shale oil and gas permits, the public is only able to get *a posteriori* access to information held by the Minister and its administration on the permits delivered and the information transmitted to the Commission of Access to Administrative Documents (CADA). Indeed, as said by Boris Martor and Raphaël Chétrit, in this allocation system, “*the mayor is informed only at the stage of the declaration of the research tasks planned for his municipality. The local population is only then able to discover these proposals by viewing notices at the town hall which describe the future realization of exploratory work, although they are neither informed about the practical processes involved, nor the actual consequences on their direct environment*”.

The question of public participation throughout the decision-making process remains relevant. It is regrettable that the Aarhus Convention probably does not fully apply to the exclusive permits for shale gas and oil. Indeed, Article 6 of the Aarhus Convention calls for public participation on decisions relating to specific activities that are listed in its Annex I, which for the energy sector includes: (1) gas and oil refineries, but also (12) the “*Extraction of petroleum and natural gas for commercial purposes where the amount extracted exceeds 500 tons/day in the case of petroleum and 500,000 cubic metres/day in the case of gas*”. An inclusive interpretation of Annex I could assimilate shale gas and oil activities. However, Point 21 of Annex I specifies that “*The provision of Article 6, paragraph 1 (a) of this Convention, does not apply to any of the above projects undertaken exclusively or mainly for research, development and testing of new methods or products for less than two years unless they would be likely to cause a significant adverse effect on environment or health*”. French law must thus show that a “*significant adverse effect on environment or health*” is at stake. But it is very unlikely that the environmental impacts of shale gas-related operations on exclusive research permits can realistically be defined as “*significant*” at the experimental stage of the process. It seems that international law does not necessarily reinforce the obligation for information dissemination and public participation in the granting of exploration permits for shale gas and oil. French law can nevertheless go beyond the international requirements and benefit from the renewal of the Mining Code to integrate these obligations of “*environmental democracy*” regarding information and participation.

The absence of information and public involvement generated a strong backlash, mobilizing the public on the subject of permit authorization. Such a protest movement is not unique, there have been similar reactions to shale gas in Canada⁵⁶ and Bulgaria⁵⁷. It follows a trend in recent history of social protests on health and environmental issues, particularly asbestos, genetically modified organisms, chemical products, nuclear power, biofuels, etc. This type of public mobilization (NIMBY⁵⁸) is becoming increasingly common, today employing a “*legal*” approach to mobilization to achieve its ambitions. Pierre Batellier and Lucie Sauvé carried out

⁵⁶ C. ROTHMAYR, L. BHERER and P. DUFOUR, ‘Luttes contre l’exploitation des gaz de schistes au Québec: quand un enjeu environnemental brasse les cartes du jeu politique’, [6 December 2011], Mouvements. W. AMOS, E. HJERTAAS and M. LETOURNEAU, *Mémoire Ottawa-Ecojustice Clinique de droit de l’environnement sur l’industrie des gaz de schiste au Québec*, [November 2010], 34 p.

⁵⁷ See International Mobilization on shale gas : <http://alter-echos.org/extractivisme-ressources-naturelles/gaz-et-petrole-de-schiste-tour-dhorizon-dune-mobilisation-citoyenne-internationale/> See Appeal on Global Frackdown to Ban Fracking on September 22, 2012. <http://www.globalfrackdown.org/>

⁵⁸ See A. POMADE, ‘Une société civile contradictoire : un obstacle à l’interprétation d’un droit de l’Homme à l’environnement ? Illustration par les thématiques OGM, éoliennes et les syndromes NEIMBY et NIMBY’, in *Les changements environnementaux globaux et droits de l’Homme*, (Directed by) C. COURNIL and C. COLARD-FABREGOULE, (June 2012), pp. 349-363.

a study⁵⁹ of the Canadian experience *vis-a-vis* shale gas exploitation, which revealed that a new type of highly organized citizenship was emerging. According to the authors, in spite of the government's efforts to implement participation strategies, citizens still find it difficult to make their voices heard. Confronted with government and industry strategies to make their projects acceptable, protest movements have shown "*collective skills in terms of research and information processing, the planning of strategic actions, communication and networking*"⁶⁰. The same is true in France, where the public mobilization was highly creative⁶¹. Over a very short timescale, many activists⁶², citizens, elected officials⁶³ and NGOs worked together to mobilize the public across entire regions. Thus, certain local authorities adopted local decrees⁶⁴ prohibiting shale gas exploration on their territory. For example, the Texan Company Schuepbach Energy, holder of the Villeneuve-de-Berg permit, has lodged an appeal against the decision of the mayors from *Ardèche and Gard* who adopted decrees. Similarly, an information and an evaluation enquiry on the exploration of shale gas was created by the General Council of the Lot-et-Garonne, and introduced in March 2012 after two permit applications in *Beaumont de Lomagne (Tarn-et-Garonne)* and *Mirande (Gers)*⁶⁵ had been filed.

The study on the Canadian experience concluded that: "*political leaders and companies no longer have the freedom of choice and must conceive of suitable projects and better manage their relations with the public. (...), they must better understand the mobilization of the citizens vis-a-vis projects that may imply environmental and social risks*"⁶⁶. In Canada, as in France, these citizen movements have been able to acquire a high level of technical knowledge and sometimes constitute a true force of power and opposition. In France, such movements played a role in making the government backtrack, stopping the authorization of exploration permits for shale gas using hydraulic fracturing, engaging in crucial debate on official energy options, accelerating reform of the Mining Code and most importantly, in a way, led the government towards the adoption of a specific law...

During the Environmental Conference of 14th and 15th September 2012, the Minister of Ecology, Sustainable Development and Energy of the new French socialist government (Delphine Batho) and the President François Hollande announced that hydraulic fracturing will remain prohibited and the reform of the Mining Code will be modified. However, the statements of some ministers revealed different views about shale gas exploration in the future. Furthermore, there has now been an appeal, signed by 19 leaders of world industry, to reopen the debate on the future potential of shale gas in France⁶⁷... Meanwhile, on 19th September 2012, the European Parliament's Environment Committee on health and environment voted in favour of the Sonik⁶⁸ report on the environmental impacts of the

⁵⁹ P. BATELLIER and L. SAUVE, 'La mobilisation des citoyens autour du gaz de schiste au Québec : les leçons à tirer', [2/2011], *Gestion*, (Vol. 36), at pp. 49-58.

⁶⁰ *Ibid.*

⁶¹ Including the drafting of local decrees to give to mayors to prohibit permits, information stands, sit-ins, petition distribution and organization of the "Stop shale gas" festival, etc.

⁶² Collectif Non au gaz de schiste Lyon (<http://stopgazdeschiste.org/>) ; Collectif Eco'lectif Dégaze de Gignac (<http://eco-lectif.ouvaton.org/>) ; Collectif Pas de gaz de schistes Hérault (<http://www.pasdegazdeschistes.rh.fr/>).

⁶³ V. EBLÉ and J.-P. HUCHON on 8 April 2011 submitted an appeal to the Administrative Tribunal of Melun.

⁶⁴ J.-M. JOVER, mayor of Gignac adopted a local decree to ban the Nant permit on his local territory.

⁶⁵ <http://nonauxgazdeschiste82.over-blog.fr/article-demande-de-permis-beaumont-de-lomagne-100086305.html>

⁶⁶ P. BATELLIER and L. SAUVÉ, *op. cit.*

⁶⁷ <http://www.usinenouvelle.com/article/gaz-de-schiste-22-personnalites-de-l-industrie-appellent-a-relancer-le-debat.N182212>

⁶⁸ <http://static.euractiv.com/sites/all/euractiv/files/Sonik%20draft%20report%20shale%20gas.pdf>

extraction of shale gas and oil⁶⁹. Moreover, at the beginning of 2013, the European Commission held a public consultation on the future development of unconventional fossil fuels in Europe: a vast majority of respondents agreed on the lack of adequate legislation, the need for public information and the lack of public acceptance of shale gas. Lastly, the 19 March 2013, the Administrative Tribunal of Cergy Pontoise, sent to the French Council of State a “*Priority Preliminary rulings on the issue of constitutionality (QPC)*”⁷⁰ raised in the context of requests for the removal of exclusive permits. To be continued...

⁶⁹<http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-%2f%2fEP%2f%2fTEXT%2bIM-PRESS%2b20120917IPR51525%2b0%2bDOC%2bXML%2bV0%2f%2fEN&language=EN>

⁷⁰ TA Cergy-Pontoise, 1re ch., 19 March 2013, n°1202504-1202507, *Société Schueperbach Energy LLC*.