

The French ban on hydraulic fracturing and the attempts to reverse it: Social mobilization, professional forums and coalition strategies

Sébastien CHAILLEUX* & Stéphane MOYSON⁺

*Centre Emile Durkheim, Sciences Po Bordeaux, France

⁺Department of Public Administration, Erasmus University Rotterdam, The Netherlands

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Introduction

In France, hydraulic fracturing was not a policy issue before 2010, when shale gas exploration started with the issuance of three licenses¹. Prior to 2011, this technique was regulated according to the subsurface mineral rights (or “*code minier*”) and the general legislation on extractive industries (as for example in Switzerland: see the Swiss chapter of this edited volume). In 2010-2011, a heterogeneous social movement of opposition put pressure on the public authorities to ban hydraulic fracturing, which occurred in July 2011. This made France the first country to forbid this controversial technique, even if experimentations on extraction techniques are still allowed in principle.

In 2011, 64 exploration licenses aiming potential unconventional hydrocarbon had been granted to oil and gas companies and dozens were under examination². The two main basins that could be exploited to extract shale hydrocarbons are the Paris basin (center) and the South-East basin (Bataille & Lenoir, 2013; Bellec et al., 2012). Conventional exploitation is declining in other basins (see Figure 1). The Sarre-Lorraine and Nord-Pas-de-Calais basins (5 licenses) contain coal gas that does not require hydraulic fracturing to be extracted. Tight gas exploration occurred in the South-East from 2006 with hydraulic fracturing tests but it did not meet the company’s expectation. Three shale gas licenses were issued in March 2010 in the South-East. Bellec et al. (2012, p. 25) point out that 39 shale oil licenses on the Paris basin had been examined on January 1st 2011 (out of which 6 have been actually explored).

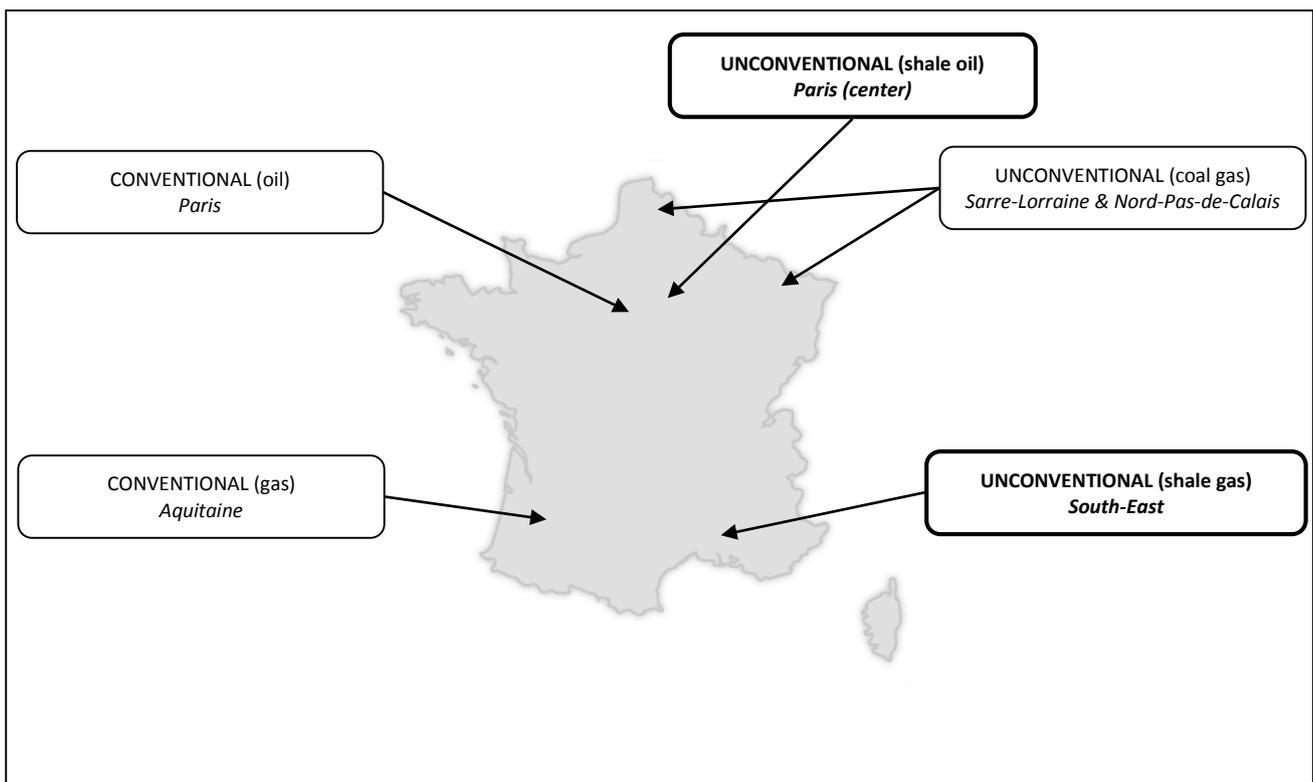


Figure 1. Hydrocarbon resources in France (adapted from Lenoir & Bataille, 2013, p. 121)

The information about the available resources of shale hydrocarbons is limited. According to the 2013 data of the US Energy Information Administration, there are about 118 billion barrels of shale oil and 727 trillion cubic feet of shale gas in the French soil (Energy Information Administration, 2013, attachment A-2). However, when

¹ This study was supported by the Dutch Organization for Scientific Research (“*Nederlandse Organisatie voor Wetenschappelijke Onderzoek – NWO*”).

² There is no legal definition of unconventional hydrocarbon in the French regulation.

it comes to assessing the amount of shale hydrocarbons that could be actually extracted, the estimates of public agencies and private companies become very imprecise. For example, the US Company Hess Oil provided an estimate of the extractable shale oil in the Paris basin comprised between 1 and 6.4 billion barrels (Lenoir & Bataille, 2013, p. 123). The information about the available resources of shale hydrocarbons in the South-East basin is as much uncertain. In addition, the estimates evolve widely over the years (Lenoir & Bataille, 2013, p. 121). This relates, first, to the growing knowledge about available shale resources. Second, the development of new techniques allows extracting more and more shale hydrocarbons.

The general objective of this Chapter is to examine the policy process of hydraulic fracturing in France (2010-2015) with the conceptual and theoretical lenses of the advocacy coalition framework (ACF: Sabatier & Jenkins-Smith, 1993; 1999; Sabatier & Weible, 2007; Weible, Sabatier & McQueen, 2009). The ACF conceptualizes the policy process as a struggle among coalitions of policy actors within a policy subsystem. A policy subsystem is a set of people who are regularly involved in the policymaking process regarding an issue like the railways, air pollution or hydrocarbon exploitation. When there are policy conflicts over policy issues, these people mobilize into coalitions to achieve their policy objectives. The members of a coalition share a system of beliefs and preferences regarding policies. Coalition members use their resources and coordinate their action to promote the translation of their policy preferences into concrete policies.

Policy change can also be induced by events that are not controlled by policy actors. Those events or “shocks” change the major attributes of the subsystem. The ACF distinguishes external and internal shocks. External shocks are not specific; they exert an influence on more than one policy subsystem (e.g., changes in socioeconomic conditions, public opinion, governing parties or new decisions made in other policy subsystems). Internal shocks specifically put into question the beliefs that guide existing policies in a given subsystem (e.g., a nuclear catastrophe when the energy sector relies on nuclear power stations or a large-scale poisoning in the food sector). In the longer term, the accumulation of new experiences and information related to policy issues also provides new ways of thinking about policy problems and solutions. For a more detailed introduction to the ACF, we refer to the introductory chapter of this edited volume.

The French policy process of hydraulic fracturing must be situated in the larger subsystem of hydrocarbon exploration and exploitation. In France, hydrocarbon exploitation is a competence of the Central State. Licenses are issued by the Minister of Environment after an assessment from the Regional Directorate of the Environment, Planning and Housing. The subsystem is traditionally ruled by civil servants in Ministries. There is fewer attention from elected Representatives, even if some of them have developed a significant interest and expertise on this policy issue over time. The main policy actors of the subsystem are companies requiring licenses and civil servants issuing them. Most often, they want to preserve hydrocarbon exploration, even if some of them acknowledge the potential risks related to hydraulic fracturing. The controversy over shale gas exploitation divided the subsystem between those pro-exploration actors and an anti-fracturing coalition gathering heterogeneous stakeholders with different claims, like environmental activists or citizens’ collectives. The anti-fracturing coalition successfully militated to ban hydraulic fracturing in July 2011. This ban led to a *de facto* moratorium on the whole shale industry as no alternative, profitable technique does exist. Anti-fracturing policy actors also plead for the empowerment of civil society and the lower decision levels (regional and local authorities) to make decisions related to the exploitation of natural resources.

This Chapter looks at the attributes of those two coalitions and examines the effect of their strategies on the policy process of shale hydrocarbon and hydraulic fracturing. The analysis also points to the effect of an external shock – the presidential and general elections 2012 – and an internal shock - the social mobilization against hydraulic fracturing related to the large-scale diffusion of Gasland, a documentary demonstrating the negative consequences of this extraction technique. Finally, throughout policy processes, various sorts of

councils, groups or committees are often created, for example to formulate or evaluate a policy. The French policy process of shale hydrocarbon is particularly illustrative of this trend: many committees of civil servants or elected officials were created to discuss and report on several aspects of hydraulic fracturing and hydrocarbon exploitation. The conclusions of those committees influenced the policy process by increasing the information available for policy actors and widening the range of acceptable policy solutions in favor of hydrocarbon exploration. Those Committees may be considered as (imperfect) forms of “professional forums”, a key concept of the ACF, because they brought together participants who represented various policy actors involved in the subsystem. Successful professional forums facilitate policy compromises among competing coalitions. For being successful, professional forums have desirable characteristics such a good representativeness of the various policy actors involved in the policy subsystem. The ACF also suggests that it is easier to compromise on empirical issues rather than on normative issues (Sabatier & Weible, 2007).

The French Central State is presidential. The President and the National Assembly (“*Assemblée Nationale*”) are elected separately in the same year every five years on the basis of a two-round election system. Through the Prime Minister, the President runs the Government. In turn, the Government runs the central administration. Half the senators are renewed every three years by delegates of the local and regional authorities. The bills related to the hydrocarbon policy are proposed by the Government (bill “projects”) or by representatives and senators (bill “proposals”). They must be passed by the Parliament. Bill proposals can concern the same object as bill projects as long as they do not put a strain on public resources. The examination of the bills is decided by the Government or the Assembly bureau (reducing the probability that bills introduced by the opposition are taken into account). Then, they are examined by a commission which may amend it before a debate in plenary session. Many bills are never examined.

To describe the outcomes of the policy process between 2008 and 2015, we collected 486 press articles from the main French newspapers (*Le Monde*, *Libération* and *Le Figaro*). We also looked at the most important decisions made by the Central State (ministerial rules, government decrees and parliamentary bills). To examine the attributes of the advocacy coalitions in this subsystem, as well their strategies and actions, we relied on 24 interviews with key policy actors such as civil servants from the central administration, scientists from universities and research centers affiliated to the central administration, as well as delegates from citizens’ collectives and environmental associations³. The questions of our interview guide that were used in this study are listed in Appendix. To map the advocacy coalitions, in addition to some general questions, we submitted our interviewees a list of arguments related to unconventional hydrocarbons and hydraulic fracturing retrieved from newspaper articles on this topic (questions 1 to 5 in the Appendix). We combined these questions with other questions on the coordination among policy actors (questions 6 to 10 in the Appendix). Finally, we examined the discussions and reports of four committees (professional forums) that were mandated, during the policy process, to look at several issues related to shale hydrocarbons and hydraulic fracturing (Bellec et al., 2012; Durville et al., 2012; Gonnot & Martin, 2011; Lenoir & Bataille, 2013; Tuot, 2013).

Case study: The policy process of hydraulic fracturing in France

In this case study, we examine the French policy process of shale hydrocarbons and hydraulic fracturing with the ACF. We distinguish two coalitions – a “pro-exploration” coalition and an “anti-fracturing” coalition. Over four periods of time between 2008 and 2015, we show how coalition strategies, together with other factors such as external and internal shocks or the effect of professional forums, resulted in concrete policy changes.

³ All interviews were recorded by Sébastien Chailleux.

The milestones of this policy process are summarized in Table 1. The ACF analysis of this policy process is synthesized in our conclusions (see **Table 2**).

<i>When?</i>	<i>Key milestones of the policy process</i>
2008 – FEBRUARY 2011: Mobilization against hydraulic fracturing and activation of an anti-fracturing coalition	
2008	- Several exploration licenses were issued for shale oil (they involved hydraulic fracturing)
March 2010	- Three exploration licenses were issued for shale gas (they involved hydraulic fracturing)
From December 2010	- Wide diffusion of “Gasland”, a critical documentary on shale hydrocarbons and hydraulic fracturing - Growing social and political mobilization against hydraulic fracturing
MARCH 2011 – JULY 2011: ban on hydraulic fracturing and activation of a pro-exploration coalition	
March 2011	- The Socialist Party (left-wing, minority party) introduced a bill proposal to ban hydraulic fracturing - The UMP (right-wing, majority party) introduced another bill proposal (the so-called “Jacob” proposal)
May 2011	- Publication of the parliamentary report on the Jacob bill proposal (Havard-Chanteguet report) Key conclusion of this report: it is favorable to the ban
July 2011	- The Jacob bill proposal is passed: ban on hydraulic fracturing
JUNE 2011 – November 2013: succession of professional forums	
June 2011	- Publication of the report of an informative parliamentary mission (Gonnot-Martin report): Two key conclusions of this report: (1) lack of knowledge on shale resources (2) inadequacy of subsurface mineral rights regarding companies’ needs and citizens’ rights
October 2011	- The three controversial licenses of March 2010 were cancelled (but other licenses stayed valid as long as companies did not use hydraulic fracturing)
February 2012	- Publication of the joint report of the administrative CGIET-CGEDD Committee Three key conclusions of this report: (1) Lack of knowledge on shale resources (2) Inadequacy of subsurface mineral rights regarding companies’ needs and citizens’ rights (3) “Clean” exploitation of shale resources could be experimented
April-June 2012	- Presidential and General elections: the Socialist Party gained the presidency (President: François Hollande) and the parliamentary majority
November 2013	- Publication of the report of the parliamentary OPECST Committee (Lenoir-Bataille report): Two key conclusions of this report: (1) Hydraulic fracturing is reasonably usable in a developed country with high environmental requirements: experimentations should be encouraged (2) French resources should be explored and assessed
December 2013 – 2015: toward a success of the pro-exploration coalition?	
2013	- The company European Gas Limited started to drill for coalbed methane in Lorraine
December 2013	- Submission of a report by the working group on subsurface mineral rights (Tuot report): Three key proposals of this report: (1) Organization of a consultation procedure for exploration projects (2) Compensation system in case of environmental damage and partial redistribution of royalties to local administrations (3) Creation of the High Council of mines where all stakeholders are represented
March 2015	- On the basis of the Tuot report, a project of bill project is discussed at the Government in collaboration with some Representatives of the National Assembly. It should be submitted at the National Assembly around the end of 2015. This project aims at: (1) securing hydrocarbon exploitation for companies (2) improving public participation in decisions related to exploration/exploitation licenses (3) improving the attention to environment when issuing exploration/exploitation licenses

Table 1. Hydraulic fracturing in France: milestones of the policy process

2008 – February 2011:

Mobilization against hydraulic fracturing and activation of an anti-fracturing coalition

Before 2010, the policies regulating the exploration for hydrocarbon resources were relatively favorable to oil and gas companies. According to the French subsurface mineral rights, subsurface is *res nullius*, which means that there is no owner. Based on this, the State could give exploration licenses with no consultation of local governments and no authorization from the landowners (exploitation licenses required public inquiry and consultation mandated by prefects, who are delegates of the Central state at the local level). The three first licenses involving the exploration of shale gas with hydraulic fracturing were issued in March 2010. Those licenses concerned shale gas exploration in south-eastern France. The three licenses of March 2010 became the main focus of the social protest. However, shale oil licenses were also issued in 2008 in the Paris region and several tests involving hydraulic fracturing occurred (Bellec et al., 2012) but they only became contested as a result of the controversy on the licenses of March 2010.

At the end of 2010, some elected officials together with various citizens' collectives and environmental associations mobilized and formed an "anti-fracturing coalition". On the one hand, several local authorities, often led by the green party "Europe Ecologie", seized upon this policy issue. Several regional parliaments (e.g., the Regional Council of Rhône-Alpes) initiated debates about restrictions on the development of hydraulic fracturing. A green representative insisted, "Europe Ecologie has been a spearhead"⁴. With other leading figures of the French green party, like José Bové or Michèle Rivasi, they supported networking and communication in the areas concerned with fracturing licenses. On the other hand, more than a hundred of local citizens' collectives emerged (e.g., in Ardèche), leading to demonstrations gathering thousands of people (Terral, 2012). Those collectives avoided their opposition to be interpreted as a NIMBY reaction⁵. Rather, they linked their opposition to environmental worries, health concerns and transparency problems. This frame demonstrates "the ability of actors to build a set of critiques that fit local problems into a broader issue" (Chateauraynaud & Zittoun, 2014). The social mobilization soon reached the Paris Region, concerned with shale oil licenses involving hydraulic fracturing too.

Our interviews show that the members of this anti-fracturing coalition succeeded in developing a base of shared beliefs related to environment, public health and participatory decision-making. They saw hydraulic fracturing as a new dangerous technique for exploiting dirty resources. They supported the prohibition the exploration-exploitation of all hydrocarbon resources that need stimulation techniques to be extracted⁶. They believed that hydraulic fracturing leads to air, water and soil pollution, health and environment hazards. They also supported a more decentralized and democratic management of local lands, which involved a reform of subsurface mineral rights. They claimed that the shale industry could not be integrated with their local economies based on tourism and agriculture. They favored renewable energies investment over fossil-fuels development⁷.

Despite a common claim against hydraulic fracturing, the coordination among the members of the anti-fracturing coalition members was far from obvious. In fact, the anti-fracturing coalition was composed of

⁴ Interview with a representative of the Green Party in the Regional Council of Rhône Alpes, May 2012.

⁵ NIMBY or « Not In My BackYard » arguments against a project are motivated by the negative consequences of this project on one's personal well-being because it will be developed in one's direct environment or in the direct environment of one's house, office, etc. NIMBY interpretations of opponents' arguments are often used by project proponents to discredit the opponents as egoist people, unaware of wider issues.

⁶ Interview with a member of Collectif 07, March 2012, as well as with a member of Collectif Causses-Méjean, April 2012.

⁷ Those beliefs are present in all interviews with opponents as well as their pamphlets and documentation (e.g., the tracts of the Collectif 07 on <http://www.stopaugazdeschiste07.org>).

different groups with their own motivations. These groups agreed on some common, basic claims including the cancellation of the contested licenses and the ban on hydraulic fracturing. However, their positions covered a wide range of nuances, especially on the conditions to re-introduce hydraulic fracturing: some policy actors pleaded for a total ban on all hydrocarbons whereas some other simply called for an impact assessment of hydraulic fracturing. This has made the coordination among them quite difficult.

Environmental organizations helped linking the controversy on shale gas exploitation to energy transition⁸. Environmental organizations associated with and/or funded by public authorities, such as *France Nature Environnement*, were more prone to compromise whereas the most critical organizations refused any development of shale hydrocarbon exploitation.

Local authorities successfully pressured the central Government by taking stance against the industry with their own competences. Some of them even went beyond their competences such as the municipalities which banned hydraulic fracturing with municipal bylaws. At the departmental level, some General Councils asked jurists for some support to oppose gas companies⁹. At the local level, hydraulic fracturing did not threaten the different locales in the same way. Communities that rely on tourism or on integrated farm management were specifically concerned with hydraulic fracturing in the south-eastern basin¹⁰.

At the central level, civil servants were divided between an anti-fracturing and a pro-exploration position. This position depended, among other things, on their institutional affiliation. For example, the officials from the Ministry of Environment tended to struggle against hydraulic fracturing more than the officials from the Ministry of Economy. Most of the civil servants managing licenses issuance were geologists and engineers who tended to see hydraulic fracturing as companies' engineers did: a safe and well-known technique¹¹. Despite the position of all political parties against hydraulic fracturing, the divide was even clearer when looking at the statements of the two UMP Ministers. Whereas the Minister of Environment N. Kosciusko-Morizet opposed the industry without nuance¹², her colleague, the Minister of Economy E. Besson, was less prone to a total ban¹³. In fact, at the political level, the initial number of anti-fracturing ministers, representatives, and senators was weak (except for a few members of the Green Party). Most of them were agnostic. As mentioned above, the legislation on hydrocarbon exploitation used to be favorable to hydraulic fracturing. Hence, much of the work of anti-fracturing policy actors was to convince civil servants and elected officials that hydraulic fracturing was undesirable. This occurred during the next period of the policy process.

March 2011 – July 2011:

ban on hydraulic fracturing and activation of a pro-exploration coalition

The Minister of Environment and the Minister of Economy responded to the social and political mobilization by asking companies to postpone all prospection projects (*de facto* moratorium). However, following the broadcasting of "Gasland", an American documentary showing the impact of the shale industry on the

⁸ Interview with a member of Friends of the Earth, March 2012.

⁹ Interview with a member of Conseil Général de l'Ardèche, July 2012.

¹⁰ Interview with an official from the Conseil Général de l'Hérault, July 2012; with a Mayor from Ardèche, July 2012.

¹¹ Interview with a member of the General Directorate on Energy and Climate, December 2014.

¹² AFP, « NKM attaque Borloo sur "l'erreur" du gaz de schiste », *Le Point*, May, 5th, 2011.

¹³ AFP, « Besson : "La France n'a pas fermé la porte au gaz de schiste" », *Libération*, February, 16th, 2011.

environment and public health, the mobilization grew¹⁴. In addition to individual activists, the number of local citizens' collectives increased drastically and local elected officials swelled the ranks of the anti-fracturing coalition¹⁵. Between January and May, a flash mobilization sprawled (Chateauraynaud & Debaz, 2011; Terral, 2012): hundreds of informative meetings were held in town halls, petitions were signed, demonstrations were organized, representatives from all political parties used their resources to gather information or to block further developments of the shale industry (e.g., restrictions on the number of trucks on municipal roads or direct municipal ban on hydraulic fracturing). Opponents demanded the withdrawal of the contested licenses and a ban on hydraulic fracturing.

The media supported the framing of anti-fracturing policy actors: most press articles associated hydraulic fracturing with concerns related to the environment and public health. 22 out of 60 national press articles from February to May mainly stressed hydraulic fracturing as a threat. 20 articles also stressed ground water pollution but they also supported the economic advantages of exploring the resources (12 articles stressed the role of technical progress, 11 articles described shale industry as an Eldorado, 8 underlined the need of exploration).

The National Assembly put hydraulic fracturing on its agenda in March 2011. After two bill proposals introduced by the Socialist Party (a left-wing party, in the opposition at that time), the "*Union pour un Mouvement Populaire (UMP)*" (a right-wing party, in the majority at that time) introduced its own bill proposal to ban hydraulic fracturing¹⁶. Christian Jacob was the first author of this bill: at that time, he was the UMP leader in the National Assembly, as well as the Representative from Seine-et-Marne, an area concerned with licenses for shale oil exploitation. Shortly after, the Representatives Havard and Chanteguët delivered a short report on this proposal on behalf of the Sustainable Development Committee of the National Assembly (Havard & Chanteguët, 2011). In spring 2011, a consensus existed among parties about the ban on hydraulic fracturing: "we may not take the risk of allowing on our national territory the development of problematic techniques and accepting that irreversible damage is caused to our environment; securing our energy supply is a major concern to which we may not sacrifice our values" (Havard & Chanteguët, 2011, p. 9).

In accordance with this consensus, the first draft of the bill simply banned unconventional hydrocarbon exploration-exploitation and hydraulic fracturing as a technique for extracting shale hydrocarbons. However, there was no consensus on blocking the exploration of shale hydrocarbons *per se*: several Representatives and Senators wanted to preserve an option to exploit shale hydrocarbons with hydraulic fracturing, if this technique was improved. For this reason, Senator Claude Biver (UMP) introduced an amendment to the bill proposal. According to this amendment, "experimentations" on hydraulic fracturing would be allowed. Further, a committee would annually review progresses and decide whether and how it is possible to develop the shale industry. The bill (including Biver's amendment) was passed in June and signed in July¹⁷. It became known as the "Jacob bill". Accordingly, in October 2011, the three controversial licenses were canceled. The other licenses were maintained, but the companies were forbidden to use hydraulic fracturing. In fact, Schuepbach Energy was the only company to declare it would use hydraulic fracturing, so its licenses were

¹⁴ The documentary was dubbed, edited and broadcasted in public meetings, on the Internet and even on the national television (Canal Plus), in April. It had a key role in shaping the public awareness of what hydraulic fracturing was and it was credited of a "decisive influence on the national debate" in the official reports (e.g., Gonnot and Martin, 2011, p. 39).

¹⁵ We listed about 200 of such collectives in 2013.

¹⁶ Bill proposal of Mr. Christian Jacob and several of his Colleagues aiming at banning exclusive licenses for exploring unconventional hydrocarbons and forbidding their exploitation on the national territory, nr. 3301, submitted on March 2011, 31st.

¹⁷ Bill nr. 2011-835 of July 2011, 13th for forbidding the exploration and exploitation of shale gas and oil with hydraulic fracturing and abrogating exclusive exploration licenses including projects involving the use of this technique, published in the Official Journal of July 2011, 14th. The Jacob bill also created an assessment committee on the experimentations of hydraulic fracturing. However, this Committee was never implemented by the Government, partly because the anti-fracturing policy actors judged that they were not sufficiently represented, within this committee, and refused to participate.

automatically removed. Total declared it would stay under the perimeter of the law and would look for conventional hydrocarbon. However, the Minister of Environment considered that its report was not credible and canceled its license. No shale oil license was canceled.

While anti-fracturing policy actors regretted the authorization of experimentations, the ban actually discredited the whole industry of shale hydrocarbons. Inhabitants and local officials became suspicious of companies which asked licenses for shale oil and then claimed conventional oil targets. Social mobilization expanded to almost all areas concerned with oil and gas licenses. In Jura, for example, Celtique Energy owned three oil licenses since 2006: they began to be contested when the ban passed. Hydrocarbon exploration became a sensible issue. In fact, only two licenses were issued for coal gas between 2011 and 2014 by the Ministry of Environment¹⁸. In addition, no alternative extraction technique was available. Hence, the strict interpretation of the ban meant that the moratorium on the exploration of shale hydrocarbons was maintained.

This led to the activation of a pro-exploration coalition of policy actors who pleaded for facilitating the exploration of shale hydrocarbons, as well as stabilizing the legal framework of the industry. For those actors, the empowerment of the civil society and lower decision levels was sufficient. Environmental protection was already enforced in the *Code minier*. Rather, a reform of the subsurface mineral rights should aim to simplify and shorten the administrative process to get a license (up to 18 months)¹⁹. Pro-exploration actors used the article 4 of the Jacob Bill to claim authorizations for conducting experimentations on hydraulic fracturing and assessing shale resources. “We should be sure that there is a resource before starting debating”²⁰. They argue that the exploration of basins would increase our knowledge on existing resources; that the experimentation of extraction techniques (including hydraulic fracturing) would allow improving them. The exploitation of shale hydrocarbons is desirable because this could increase the energy independence of the country, decrease the energy costs of citizens and companies, as well as contribute to job creation. The risks of hydraulic fracturing, they argue, are well controlled. The benefits of hydraulic fracturing and related techniques overcome their disadvantages.

The pro-exploration coalition of policy actors was composed of early supporters of the industry, who even defended hydraulic fracturing, as well as later supporters who only stressed the importance of exploration and experimentation. In addition to gas and oil companies, the main advocates of the exploration of the shale resources belong to the organizations that provide specific expertise on these topics. For example, a scientist employed in such an organization said that “there is no insuperable technical problem. We need to take into account environmental and societal issues”²¹. Most of them were insisting on their neutral position: “our mission is to provide knowledge, not to take stance pro or against this subject”²².

At the political level, the support of representatives and senators depended on various factors. Generally speaking, right-wing politicians became more sympathetic to the economic arguments of pro-exploration actors over time²³. However, the Representatives from the regions directly concerned with hydraulic fracturing were less prone to support the shale industry (e.g., Christian Jacob). Some left-wing Representatives, such as the future Minister of Industrial Recovery, Arnaud Montebourg, also supported the pro-exploration coalition. It was the shale hydrocarbon industry which was supported and not explicitly hydraulic fracturing.

¹⁸ Interview with a member of the Directorate of Energy and Climate (Ministry of Environment), December 2014.

¹⁹ Interview with a member of European Gas Limited, May 2015.

²⁰ Interview with a member of IFP Energies Nouvelles, August 2012.

²¹ Idem.

²² Interview with a member of INERIS, August 2012.

²³ The former President Nicolas Sarkozy proclaimed his support to shale gas in September 2014.

We interpret the political success of the anti-fracturing coalition as the combined effect of its strategy and an internal shock. Despite the difficult coordination among its members, the anti-fracturing coalition was very strong in mobilizing a wide range of resources to struggle against hydraulic fracturing. In comparison with pro-exploration policy actors, they lacked financial resources as well as strong connections with mobilizable troops with formal authority within the central State (e.g., top civil servants). However, anti-fracturing policy actors succeeded in mobilizing activists, public opinion, the media and local officials. There were numerous press articles, demonstrations or informative meetings in town halls which were mainly focused on discussing the dangers of hydraulic fracturing. Citizens' collectives also achieved framing their local worries into concerns of general interest (threats on public health, the environment and the economy). This being said, the mobilization of the anti-fracturing policy actors benefited from a social mobilization which largely exceeded the effect of their political strategy. This is partly related to the impact of "Gasland". This documentary put into light the inadequacy of existing policies regarding the threats of hydraulic fracturing. Together, the diffusion of Gasland as well as the social and political mobilization correspond to the ACF definition of an internal shock.

In July 2011, the presidential and general elections 2012 were also very close. As such, they can be framed as an external shock. Elections are a specific sort of shock. Unlike other external events, elections are most often very expected. Hence, they produce their effects on policy processes not only after but also before they occur. The French policy process of hydraulic fracturing is particularly illustrative of this. Between March and July 2011, elected officials were attentive to the effect of their decisions on public opinion and preferred to appear closer to popular worries than to companies' demands. Given the social mobilization against hydraulic fracturing, this probably played a very significant role. However, we have no empirical evidence to prove this analytical speculation.

June 2011 – November 2013: succession of professional forums

Between June 2011 and 2013, several committees published their work on issues related to hydraulic fracturing. These committees were "professional forums", in ACF terms, because they were sufficiently open to welcome – or to hear – people from many groups concerned with hydraulic fracturing (officials, politicians, companies, citizens, associations, etc.). At the same time, they were sufficiently closed to admit only people who were significantly involved in the policy process and had a good knowledge about the policy issue. Some of those forums were mandated before the Jacob bill was passed but they only published their report once hydraulic fracturing was banned.

In February 2011, a joint-session committee of the General Council of Industry, Energy and Technologies ("*Conseil général de l'industrie, de l'énergie et des technologies*": CGIET) and the General Council of the Environment and Sustainable Development ("*Conseil général de l'environnement et du développement durable*": CGEDD) started work. Those committees, composed of public officials with expertise, were mandated in early February by their supervisory minister when protests became louder. The Minister of Environment and the Minister of Industry asked companies to postpone their drilling projects until the mission published its report. This joint committee was presented as a regular administrative process by one of its member: "this is quite naturally that ministers turned towards general councils to obtain responses"²⁴. It benefited from a technical mandate insisting on potential development, techniques, legal frame and environmental impacts. The joint session was composed of four top officials, two of them from the Ministry of Industry (CGIET), two others from the Ministry of Environment (CGEDD). They were top engineers from the Central State. They published a stage report in April 2011 but Representatives did not wait for the final report

²⁴ Interview with a member of the CGIET, October 2014

to pass the Jacob bill. The CGIET and CGEDD Committees published their final report in February 2012 (an initial report and a complementary report: Bellec et al., 2012; Durville et al., 2012). This report acknowledged the potential risks of hydraulic fracturing and the lack of impact studies but advised the government to let the door open for “cleaner” innovations and a more sustainable development of hydraulic fracturing. It also suggested to reform the subsurface mineral rights. The report did not draw much attention. One reason, probably, is that it was published a couple of months before the general elections and no candidate campaigned on a pro-fracturing stance. However it preceded (and supported) the creation by the Government of the national assessment committee mandated to supervise experimentations (a committee planned by the Jacob bill but will never be concretely implemented).

A parliamentary information Committee coordinated by the Representatives Gonnot and Martin was set up in March 2011 and published its report in June 2011 (Gonnot & Martin, 2011). Pressured by their electorate, Representatives wished to collect information without having to wait for the administrative report from the administrative CGIET-CGEDD Committee. The Jacob bill was also passed before the publication of this report. This report underlines the limited knowledge on the exact amount of hydrocarbon resources within the French soil, the lack of impacts assessments of hydraulic fracturing on the environment and public health, as well as the inadequacy of subsurface mineral rights. Interestingly enough, on the basis of a common report, Gonnot and Martin took opposite stances in their conclusions. On the one hand, Gonnot (from the right-wing UMP) displayed its support to exploration and the potential economic opportunities of shale industry. On the other hand, Martin (from the left-wing Socialist Party) underlined energy transition and the goal of reducing GHG emissions²⁵.

The presidential and general elections occurred in April-June 2012. At the National Assembly, the new majority was led by the Socialist Party (with smaller allies such as the Green Party). The new President of the Republic is François Hollande. He claimed his strong opposition to hydraulic fracturing, confirming the ban and a strict interpretation of the law. However, discordance soon appeared within the majority between the Minister of Industrial Recovery and the Minister Environment. Minister of Industrial Recovery Arnaud Montebourg multiplied statements in favor of experimentations and exploration, on the basis of economic arguments. He even asked for a shadow report that shows the profitability of hydraulic fracturing which leaked to the media only in 2015, after his dismissal from the Government. However, each time, he was rectified by the President or Prime Minister.

In November 2012, the Parliamentary Committee for the Assessment of Scientific and Technological Choices (*“Office Parlementaire d’Evaluation des Choix Scientifiques et Technologiques”*: OPECST) was mandated by Parliament to assess alternative techniques for exploiting shale hydrocarbons²⁶. This mission was coordinated by Senator Lenoir and Representative Bataille. The OPECST is composed of thirty-six Representatives and Senators. It is supported by a Scientific Council of Researchers from various public authorities, universities and companies. The conclusions of this Committee were far more optimistic than previous reports: it concluded that “alternative techniques to hydraulic fracturing do exist, which means that there is no need of water to extract shale hydrocarbons. (...) Hydraulic fracturing has made important progresses (...) this is a technology, admittedly industrial and risky, but mastered and reasonably usable in a developed country with high environmental requirements” (Lenoir & Bataille, 2013, p. 9). The OPECST pleaded for a reinforcement of research in France on this topic and not, “as a strict interpretation of the bill of July 2011 tends to suggest, for a generalized withdrawal of shale hydrocarbons” (Lenoir & Bataille, 2013, p. 9).

²⁵ Philippe Martin became Minister of Environment in 2013-2014.

²⁶ To be precise, the OPECST Committee asked the Parliament to be mandated on grounds that the assessment committee on experimentations of hydraulic fracturing was not implemented.

All in all, the conclusions that came out of the work of those successive professional forums clearly evolved over time. Admittedly, the classical method of hydraulic fracturing was not approved. However, the distrust over shale hydrocarbons disappeared. The view on this industry became more and more positive. We attribute this evolution to two key characteristics of those forums. First, their representativeness of anti-fracturing policy actors was weak. In particular, companies and the central public administration were overrepresented in the composition of the committees, compared to local authorities, environmental associations and citizens' collectives. There was also more room for the arguments of pro-exploration policy actors in the hearings conducted the professional forums as well as among the references used in their reports. The ACF suggests that representative professional forums facilitate policy compromises among competing advocacy coalitions. A corollary statement is that non representative forums give more room to the arguments of the policy actors who are overrepresented. Our findings fit with this expectation.

Second, professional forums focused on empirical issues ("how should we exploit shale hydrocarbons?"). They looked at issues such as amounts of water, chemical products, security perimeters, numbers of trucks, etc. Related to this, they mostly focused on technical questions that should be addressed to reducing the scientific uncertainty surrounding the extraction of shale hydrocarbons. By showing the accumulation of knowledge and information about those issues, professional forums highlighted the reduction of technical uncertainty (the same frame is adopted in the UK case: see the UK Chapter of this edited volume). They also pleaded for more research on the questions that remained unresolved. In contrast, the normative question – "should we exploit shale hydrocarbons at all?" – was mostly eluded. The discussion process did not leave much room to the philosophical, societal or environmental arguments developed by anti-fracturing policy actors. The ACF suggests that it is easier to compromise on empirical issues than on normative issues, within professional forums. This case study illustrates that a focus on empirical issues can also favor the (empirical) arguments of one coalition, compared to the (normative) arguments of another coalition.

At this period of the policy process, media attention for hydraulic fracturing also decreased. For example, between October and December 2013, only 27 newspaper articles concerned hydraulic fracturing. Newspaper had also become more tolerant or even supportive regarding hydraulic fracturing: 9 out of those 27 articles still underlined hydraulic fracturing as a threat and 6 reported the international struggles against the shale industry. However, 9 articles also stressed the necessity of exploration, 7 the benefits for energy independence, 6 suggested to let the door open and 6 pointed out the inadequacy of the Jacob bill.

December 2013 – 2015: toward a success of the pro-exploration coalition?

In February 2013, the Prime Minister mandated top official Thierry Tuot to coordinate a working group on the reform of subsurface mineral rights. This group is composed of delegates from the central administration, local authorities, research centers, companies, unions, as well as activists from environmental associations. It is a new professional forum but it is more representative of anti-fracturing policy actors and, as explained above, its work began in a context where shale hydrocarbons had a better image than before. The group published a first report in December 2013 (Tuot, 2013). Then, its work stagnated for several months.

In March 2015, however, a draft of bill project was submitted to the Government on the basis of the 2013 report²⁷. This project contains several measures that should allow all stakeholders, including environmental associations and local citizens' collectives, to be consulted before the issuance of licenses. It also ensures compensations when those activities cause environmental damage. Finally, the project organizes a better

²⁷ Thierry Tuot was heard by the Committee of Sustainable Development and Land Settlement of the National Assembly on March 2015, 10th.

distribution of fiscal revenues between the State and the local authorities. However, the project mostly organizes a procedure that should allow companies to get more local allies through better profit-sharing with the municipalities. The project also aims at improving the legal security of exploitation projects. Finally, stakeholders are brought together in a “High Council of Mines” that will be responsible for preparing and updating a national plan indicating where and which hydrocarbon resources may be exploited. The composition of such council has still to be determined.

A bill on energy transition has also been discussed since June 2014. This bill mainly aims to reduce energy consumption, decrease greenhouse gas emissions and reduce the rate of fossil fuels in the energy mix. These goals do not favor shale extraction but do not dismiss it (greenhouse gas emissions can be reduced by substituting coal by gas). Shale hydrocarbons were only mentioned when a group of Senators tried to introduce an amendment on assessing the resources of unconventional hydrocarbons. This amendment reactivated the anti-fracturing policy actors who mobilized through an Internet campaign and succeeded to reject the amendment.

At the moment of finalizing this chapter, the reform of subsurface mineral rights is being discussed at the Governmental level. The bill on energy transition is being discussed at the National Assembly. All in all, the situation has become far more favorable to pro-exploration policy actors. First, pro-exploration narratives benefit from a qualitatively more positive attention from the media. In contrast, anti-fracturing narratives receive a quantitatively less important attention. Second, opinion polls suggest that there was only 48% of experimentation supporters in August 2012 (IFOP, 08/01/2012). But it grew to 58% in March 2013 (IFOP, 03/27/2013) and up to 69% in February 2014 (Opinionway, 02/10/2014). Third, we showed how the reports from various professional forums have become more and more favorable to shale resources assessment as well as experimentations on various extraction techniques. As a result, the ban on hydraulic fracturing still applies but the exploration of shale resources and the experimentations on alternative extraction techniques obtains official attention and research funding²⁸.

The success of pro-exploration policy actors fits with ACF expectations. Proponents of controlled hydraulic fracturing are few in number but they have strong relations with the key administrative and political decision-makers, within the policy subsystem. At the political level, networks were created by elected officials, such as the *Club énergie et développement* of the Representative Gonnot (UMP). They organize events such as annual meetings. Meetings are held on shale hydrocarbons in the *Académie des sciences* or *Ecole des mines*, for example, and gather top civil servants, delegates of gas/oil companies as well as politicians (Baudrin et al., 2014). In January 2015, companies coalesced into a new lobbying structure, the Unconventional hydrocarbons center, which militates for shale exploration and a “long term project”²⁹.

At the administrative level, there are also well-established relations among top officials and proponents of hydraulic fracturing, especially delegates and lobbyists from the industry as well as public research agencies

²⁸ For example, in July 2013, the National Center for Scientific Research signed an agreement with the Bureau of Geological and Mining Surveys to map and provide new data on the French underground resources; a pluri-disciplinary project on coalbed methane exploration in Lorraine was also funded; in June 2014, the European Research Funds supported the development of innovative techniques to assess the risks related to hydraulic fracturing and to model exploitation.

²⁹ Jean-Louis Schilansky, former President of the French Oil Producers Coalition and new President of the Unconventional Hydrocarbons Center, in *Le Monde*, 29th January 2015.

such as IFPEN³⁰, BRGM³¹ or INERIS³². Those people share a similar educational background in engineering, geology and other related fields from common organizations such as the *Corps des Mines* or *Ecole Polytechnique*. There are also strong links of public research agencies with gas and oil companies³³. They depend on their money to fund research programs. For example, IFPEN participated to the GASH (Gas Shales in Europe) project sponsored by the main oil and gas companies. Finally, the regulation of hydrocarbon exploitation has usually relied on privileged relationships between companies demanding licenses and the central administration issuing them. “We are told to be too close to the companies and to help them. Sure we help them but we also control them”, a civil servant said³⁴. However, the relationships between State engineers and companies engineers is far more structured than any relationship between activists and the Ministry of Environment. In addition, even if the Ministry regularly consults associations such as *France Nature Environnement*, these are not the most critical associations.

In 2010-2011, it was difficult for the proponents of controlled hydraulic fracturing to express their point of view. The social mobilization was important, the media attention was high and the political support for anti-fracturing policy actors was strong. In addition, the presidential and general elections were forthcoming. Since the Jacob bill was passed in July 2011, however, the anti-fracturing policy actors have lost most of their political resources. First, media attention and popular support decreased. On the one hand, hydraulic fracturing was formally banned. Hence, anti-fracturing arguments lost much of their significance. On the other hand, environmental issues other than hydraulic fracturing have drawn a growing attention. They include, for example, the use of pesticides or the construction/extension of public infrastructures such as airports. Second, anti-fracturing policy actors lost many of their activists. Indeed, despite their ability to link hydraulic fracturing to environmental problems, many citizens’ collectives were mainly concerned with the potential problems caused by hydraulic fracturing in the area where they lived. Hence, when the most controversial licenses were cancelled, their activism decreased. Finally, the presidential and general elections are less close nowadays than they were in July 2011. Hence, elected officials are probably less pressured to show their responsiveness to popular worries, compared to the companies’ requests and the economic promises of shale industry. All in all, this gives more room to the arguments of pro-exploration policy actors.

Conclusion

In this Chapter, we looked at the French policy process of hydraulic fracturing (2008-2015). We analyzed this process with the ACF and conceptualized it as a struggle, within the subsystem of hydrocarbon policy, among two coalitions of policy actors. The first coalition is composed of anti-fracturing policy actors. They plead, at least, for a ban on hydraulic fracturing and the empowerment of civil society when it comes to issue exploration-exploitation licenses. Some of them even plead for a complete prohibition of shale hydrocarbons. Citizens’ collectives and environmental associations, together with several scientists and elected officials are the main members of this first coalition. The second coalition does not want to reintroduce hydraulic fracturing *per se*. However, as a result of the ban on hydraulic fracturing, the exploitation of shale hydrocarbons became uncertain and difficult because no alternative. Hence, those policy actors plead for facilitating the

³⁰ “*Institut national du pétrole et des énergies nouvelles*”: National institute of oil and new energies (a former professional organization which became an industrial and commercial public agency in 2010, with research and training missions).

³¹ “*Bureau de recherches géologiques et minières*”: Bureau of geological and mining research (mining research, support to public policies, international cooperation, mining security and training).

³² “*Institut national de l’environnement industriel et des risques*”: National institute for the industrial environment and risks (public agency in charge of assessing and preventing industrial risks as well as studying chemicals and subsurface exploitation).

³³ Interview with a geologist from the Université de Montpellier, January 2014.

³⁴ Interview with a member of the Directorate of Energy and Climate (Ministry of Environment), December 2014

experimentation of alternative extraction techniques. To evaluate the profitability of extraction techniques, they also plead for the assessment of existing shale resources. Delegates of oil and gas companies, together with some other scientists and elected officials, are the main members of this coalition. Many civil servants are anti-fracturing or pro-exploration according to their organizational affiliation, their educational background and their relations with other policy actors.

In 2011, hydraulic fracturing was banned in France. Between 2011 and 2013, several committees or “professional forums” were mandated to work on various aspects related to unconventional hydrocarbons and hydraulic fracturing. Their discussions and reports became more and more favorable to the assessment of existing shale resources and the experimentations of various techniques to extract them. Between 2013 and 2015, there has been no major change in policy decisions. In particular, hydraulic fracturing has remained formally forbidden (Jacob bill). However, there have been minor but substantial changes in policy outputs. More and more research has been conducted to assess existing shale resources in the French soil. Similarly, more and more experimentations have been conducted on alternative techniques to extract shale hydrocarbons. In the future, procedures allowing the issuance of new licenses for exploring unconventional hydrocarbons could even be decided. A bill project on this topic is being discussed at the Governmental level. Hence, pro-exploration policy actors have been quite successful in their attempts to reverse the ban on hydraulic fracturing.

In our study, we have related those policy outcomes to the effect of external and internal shocks, coalition strategies, and professional forums. The 2011 ban was major policy change. This change was stimulated by an internal shock: the large-scale social mobilization that emerged in 2010. This mobilization was partly related to the wide diffusion of *Gasland*, a documentary that shows the negative consequences of the exploitation of shale hydrocarbons. This policy change also resulted from the ability of the anti-fracturing policy actors to make use of their political resources, including media attention as well as popular and political support. In addition, In March– July 2011, the presidential and general elections were close. Hence, elected officials probably wanted to demonstrate that they were responsive regarding popular worries on hydraulic fracturing. This can be interpreted as the *a priori* effect of an external shock.

However, the strict interpretation of the ban on hydraulic fracturing led to a *de facto* moratorium on all exploration projects. This contributed to the activation of a pro-exploration coalition of policy actors. The success of this coalition in promoting shale industry, between 2013 and 2015, may be related to three factors. First, the anti-fracturing policy actors lost many of their political resources, including media attention, citizen activism, and political support. Second, pro-exploration policy actors have important financial resources and strong networks of relations with top civil servants and elected officials. Third, the discussions and reports of various professional forums have become more and more favorable to shale hydrocarbons. As a result, skeptical officials became more tolerant regarding shale hydrocarbons and pro-exploration officials had more room to express their point of view. This facilitated the authorization and funding of research on existing shale resources and experimentations of extraction techniques. These findings are summarized in **Table 2**.

2008 – FEBRUARY 2011: Mobilization against hydraulic fracturing and activation of an anti-fracturing coalition	
Shocks	<i>Internal shock:</i> wide diffusion of Gasland, a documentary which shows the negative consequences of shale hydrocarbons and hydraulic fracturing; large-scale social and political mobilization.
Coalitions' resources	<i>The anti-fracturing policy actors could rely on a variety of policy resources:</i> support of the public opinion; there is much media attention, rather opposed to hydraulic fracturing; there is much activism on the part of citizens' collectives, environmental associations, etc.; many civil servants and elected officials show support for anti-fracturing policy actors
Policy change?	<i>No policy change</i>
MARCH 2011 – JULY 2011: ban on hydraulic fracturing and activation of a pro-exploration coalition	
Shocks	<i>External shock:</i> As presidential and general elections 2012 were close, we speculated that elected officials wanted to demonstrate that they were responsive regarding popular worries on hydraulic fracturing.
Coalitions' resources	<i>The anti-fracturing policy actors made use of their political resources</i>
Changes in policy outputs	<i>Major policy change:</i> The Jacob bill forbade hydraulic fracturing (but allowed experimentations on extraction techniques) <i>Changes in policy outputs:</i> Contested exploration licenses were cancelled
JUNE 2011 – November 2013: succession of professional forums	
Shocks	
Professional forums	<i>Several professional forums were mandated at the administrative and political levels:</i> They discussed various issues related to shale hydrocarbons and hydraulic fracturing. Their discussions and reports became more and more favorable to the experimentation and a controlled use of various extraction techniques.
Coalitions' resources	<i>Decline of media attention</i>
Policy change	<i>No policy change</i>
December 2013 – 2015: toward a success of the pro-exploration coalition?	
Shocks	<i>No shock identified during this period of time:</i>
Coalitions' resources	<i>Pro-exploration policy actors are few in number but they have key resources:</i> They have important financial resources from gas and oil companies as well as the large-scale research programs on shale resources. They have strong network relations with civil servants, elected officials and within public research agencies, many of them being pro-exploration. <i>The resources of anti-fracturing policy actors have drastically decreased:</i> Media attention has not only declined but it has also become more open-minded regarding the exploration of shale hydrocarbons. As the most contested exploration licenses have been cancelled, the activism of citizens' collectives has also decreased. Public opinion has become more tolerant regarding hydraulic fracturing. Political and administrative support from mobilizable troops with formal authority has also increased.
Policy change	<i>No major policy change: hydraulic fracturing has not been allowed</i> <i>Incremental and significant changes in policy outputs:</i> There are authorizations as well as public and private funding to conduct experimentations on various extraction techniques as well as to assess shale resources in the French soil.

Table 2. ACF analysis of the French policy process of hydraulic fracturing (2008-2015)

At the theoretical level, our findings fit with ACF expectations about the effect of shocks, as well as coalition resources and strategies, on policy change. They also point to the importance of minor but actual policy changes in policy processes: it can be a fruitful strategy to campaign for incremental changes in policy outputs – here, getting authorizations and funding for research projects on shale hydrocarbons – rather than to fight for a major policy change – here, a formal cancellation of the ban on hydraulic fracturing. Finally, our study has shown the crucial role of professional forums in framing the policy process. Consistent with ACF expectations, their weak representativeness of anti-fracturing policy actors helped pro-exploration participants to frame discussions and reports in a favorable way. Inconsistent with ACF, their focus on empirical arguments did not contribute to compromise coalitions' positions. Rather, this gave more room the (empirical) arguments of pro-exploration policy actors (on the technical aspects of shale exploration-exploitation) rather than to the (normative) arguments of anti-fracturing policy actors (on the desirability of shale exploration-exploitation). This calls for more research on the characteristics of successful professional forums.

The propensity for future policy changes will probably depend on the results of the next presidential and general elections in 2017. New subsurface mineral rights favoring the empowerment of environmental associations and local citizens' collectives should be decided in the next months (based on the Tuot report and proposals). Other major decisions will be probably made after the elections 2017. Since the elections 2012, the economic context has declined: the unemployment rate is still climbing and few economic growth has been generated. In opinion polls, people display a more positive attitude toward the experimentations on extraction techniques of shale hydrocarbons. This is probably related to the potential economic opportunities of shale industry. As a result, civil servants and elected officials have become more open-minded regarding the exploration of unconventional hydrocarbons. Furthermore, coalbed methane exploration could prove the profitability of a new French gas industry and revive the French expertise on mining and hydrocarbon resources. However, a total reverse of the ban on hydraulic fracturing is doubtful. New experimentations and further exploration in the Paris basin could be decided. In contrast, the South-East basin will probably be untouchable for a long time if companies do not want to reactivate a massive social mobilization.

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Appendix – Questions from the interview guide

We list the set of questions which were the most used in the present study.

Questions related to policy beliefs and coordination within advocacy coalitions

1. What does your organization represent (legitimacy, values, group)?
2. Which policies does your organization aim to influence (topic, geographical and functional scope)?
3. What are the policy positions defended by your organization on shale hydrocarbons and hydraulic fracturing?
4. What do you think about shale hydrocarbons and hydraulic fracturing? What do you think about the ban on hydraulic fracturing?
5. What do you think about the following arguments?³⁵
 - a. Environmental arguments on water contamination, air pollution, etc.
 - b. Technological arguments on the uncertainty surrounding extraction techniques, the treatment of water, etc.
 - c. Legal arguments on the non-compliance with the environmental code, the Kyoto protocol, etc.
 - d. Social arguments related to the deterioration of landscapes, the negative impact on tourism and agriculture, etc.
 - e. Health arguments on the risks of cancers and diseases resulting from water and air pollution.
6. How do you situate your organization with regard to other stakeholders in the policy of shale hydrocarbons?
7. How would you situate the policy position of your organization with respect to the position of the Government?
8. What are the relations of your organization with other organizations advocating similar policy positions?
9. What are the relations of your organization with other organizations advocating different policy positions?
10. How do you feel that your policy arguments and actions are considered by your allies, opponents, officials, and politicians?

Questions related to the factors of policy change (coalition resources & strategies, ext. and int. shocks, ...)

11. What are the sources of information that you used to inform your policy position on shale hydrocarbons and hydraulic fracturing? Did you use scientific sources?
12. What are the resources used by your organization to influence policies (financial, human, etc.)?
13. What types of initiatives did your organization take to relay its arguments and defend its policy position?
14. Did your organization: (A) organize demonstrations? (B) Organize symbolic actions? (C) Formulate public stances? (which media?) (D) Organize legal action? (E) Take up lobbying? (F) Negotiate with other policymakers?
15. What were the three political actions of your organization that had the most important impact on the policy process?
16. How would you describe your relation with the media?
17. What are the aspects of the economic, social and political context that facilitated or impeded your political strategy? What were the opportunities? What were the constraints?
18. What does your organization expect from the Central Administration, Government and Parliament in the coming months? What does your organization plan to do?

Questions related to professional forums

19. What do you think about the different committees that were established to allow policy debates on hydraulic fracturing and shale hydrocarbons (CGIET-CGEDD Committee of February 2011, parliamentary mission of March 2011, OPECST Committee of November 2012, as well as the Working group on subsurface mineral rights of November 2013)?
20. Would you plead for a more public or more official debate on shale hydrocarbons?

³⁵ The interviewer cites a list of arguments within each category: he asks the interviewee whether he/she agrees or disagrees and why.