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# REPORT

on the environmental impacts of shale gas and shale oil extraction activities  
(2011/2308(INI))

Committee on the Environment, Public Health and Food Safety

Rapporteur: Bogusław Sonik

## CONTENTS

	<b>Page</b>
MOTION FOR A EUROPEAN PARLIAMENT RESOLUTION.....	3
EXPLANATORY STATEMENT .....	15
OPINION OF THE COMMITTEE ON DEVELOPMENT .....	20
OPINION OF THE COMMITTEE ON LEGAL AFFAIRS .....	24
RESULT OF FINAL VOTE IN COMMITTEE.....	27

## MOTION FOR A EUROPEAN PARLIAMENT RESOLUTION

### on the environmental impacts of shale gas and shale oil extraction activities (2011/2308(INI))

*The European Parliament,*

- having regard to Directive 94/22/EC of the European Parliament and of the Council of 30 May 1994 on the conditions for granting and using authorisations for the prospection, exploration and production of hydrocarbons<sup>1</sup>,
- having regard to Council Directive 92/91/EEC of 3 November 1992 concerning the minimum requirements for improving the safety and health protection of workers in the mineral-extracting industries through drilling<sup>2</sup>,
- having regard to Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries (Mining Waste Directive) and amending Directive 2004/35/EC<sup>3</sup>,
- having regard to Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives<sup>4</sup>,
- having regard to 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<sup>5</sup>,
- having regard to Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive)<sup>6</sup>,
- having regard to Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control)<sup>7</sup>,
- having regard to Directive 2004/35/EC of the European Parliament and of the Council of 21 April 2004 on environmental liability with regard to the prevention and remedying of environmental damage (Environmental Liability Directive, or ELD)<sup>8</sup>,
- having regard to Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (Water Framework Directive)<sup>9</sup>,

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<sup>1</sup> OJ L 164, 30.6.1994, p. 3.

<sup>2</sup> OJ L 348, 28.11.1992, p. 9.

<sup>3</sup> OJ L 102, 11.4.2006, p. 15.

<sup>4</sup> OJ L 312, 22.11.2008, p. 3.

<sup>5</sup> OJ L 26, 28.1.2012, p. 1.

<sup>6</sup> OJ L 206, 22.7.1992, p. 7.

<sup>7</sup> OJ L 334, 17.12.2010, p. 17.

<sup>8</sup> OJ L 143, 30.4.2004, p. 56.

<sup>9</sup> OJ L 327, 22.12.2000, p. 1.

- having regard to Council Directive 98/83/EC of 3 November 1998 on the quality of water intended for human consumption (Drinking Water Directive);
- having regard to Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration (Groundwater Directive)<sup>1</sup> ,
- having regard to Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading (as amended)<sup>2</sup> , and Decision 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community’s greenhouse gas emission reduction commitments up to 2020<sup>3</sup> ,
- having regard to Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency , amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC (REACH Regulation)<sup>4</sup>,
- having regard to Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (aligning existing EU legislation with the United Nations Globally Harmonised System (GHS))<sup>5</sup>,
- having regard to Directive 98/8/EC of the European Parliament and of the Council of 16 February 1998 concerning the placing of biocidal products on the market (Biocidal Products Directive)<sup>6</sup>,
- having regard to Council Directive 96/82/EC of 9 December 1996 on the control of major-accident hazards involving dangerous substances (Seveso II Directive)<sup>7</sup>,
- having regard to its resolution of 13 September 2011 on facing the challenges of the safety of offshore oil and gas activities<sup>8</sup>,
- having regard to the report on unconventional gas in Europe, of 8 November 2011, commissioned by the Directorate-General for Energy of the Commission<sup>9</sup>,
- having regard to the transmission note of 26 January 2012 from the Commission’s

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<sup>1</sup> OJ L 372, 27.12.2006, p. 12.

<sup>2</sup> OJ L 275, 25.10.2003, p. 32.

<sup>3</sup> OJ L 140, 05.06.2009, p. 136.

<sup>4</sup> OJ L 396, 30.12.2006, p. 1.

<sup>5</sup> OJ L 353, 31.12.2008, p.1

<sup>6</sup> OJ L 123, 24.4.1998, p. 1.

<sup>7</sup> OJ L 10, 14.1.1997, p.13.

<sup>8</sup> Texts adopted, P7\_TA(2011)0366.

<sup>9</sup> TREN/R1/350-2008 lot 1, [http://ec.europa.eu/energy/studies/doc/2012\\_unconventional\\_gas\\_in\\_europe.pdf](http://ec.europa.eu/energy/studies/doc/2012_unconventional_gas_in_europe.pdf).

Directorate-General for the Environment to Members of the European Parliament on the EU environmental legal framework applicable to shale gas projects,

- having regard to the Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, entitled ‘Energy Roadmap 2050’ (COM(2011)0885),
  - having regard to Petitions 886/2011 (on the risks associated with shale gas exploration and extraction in Bulgaria) and 1378/2011 (on extraction of shale gas in Poland ),
  - having regard to the study published by the Directorate-General for Internal Policies, Policy Department A: Economic and Scientific Policy of the European Parliament in June 2011: Impacts of shale oil and shale gas extraction on the environment and on human health,
  - having regard to Articles 4, 11, 191, 192, 193 and 194 of the Treaty on the Functioning of European Union,
  - having regard to Rule 48 of its Rules of Procedure,
  - having regard to the report of the Committee on the Environment, Public Health and Food Safety and the opinions of the Committee on Development and the Committee on Legal Affairs (A7-0283/2012),
- A. whereas recent technological advancements have already spurred a rapid, commercial-scale extraction of unconventional fossil fuels (UFF) in certain parts of the world; whereas there is no commercial-scale exploitation in the EU yet and the potential of reserves and possible impacts on the environment and public health have to be further scrutinized;
- B. whereas the development of shale gas is not uncontroversial in the EU or worldwide, thereby necessitating a thorough examination of all the impacts (on the environment, public health and climate change) before developing this technology further;
- C. whereas the Energy Roadmap 2050 has identified that shale gas and other unconventional sources have become potential important new sources of supply in or around Europe; whereas substitution of coal and oil with gas in the short to medium term could help to reduce GHG emissions depending on their lifecycle;
- D. whereas gas can be used to serve base load power generation as well as provide reliable back-up power for variable power sources, such as wind and solar, and this reliability reduces the technical challenges of grid balancing; whereas gas is also an efficient fuel for heating/cooling and numerous other industrial uses which enhance EU competitiveness;
- E. whereas the two main techniques deployed in unleashing the UFF potential of shale gas and coal bed methane, horizontal drilling and hydraulic fracturing (fracking), have been used in combination for just a decade, and should not be confused with well stimulation techniques used for the extraction of conventional fossil fuels due to the combination of these two techniques and the scale of intervention involved;

- F. whereas the EU is committed to a legally binding target to reduce greenhouse gas emissions and increase the share of renewable energy; whereas any decisions on exploitation of UFF should be seen in the context of the need to cut emissions;
- G. whereas to date there has been no EU (framework) directive for regulating mining activities;
- H. whereas there is insufficient data on fracturing chemicals and environmental and health risks associated with hydraulic fracturing; whereas important analysis is still ongoing and there is a growing need for further and continuous research; whereas the existence and transparency of data, sampling and tests is of paramount importance to high-quality research in support of proper regulation that will protect public health and the environment;
- I. whereas any type of fossil fuel and minerals extraction involves potential risks for human health and the environment; whereas it is essential that the precautionary and the polluter-pays principles are applied to any future decisions about the development of fossil fuel resources in Europe, taking into account potential impacts from all stages of the exploration and exploitation process;
- J. whereas EU Member States such as France and Bulgaria have already imposed a moratorium on shale gas extraction due to environmental and public health concerns;
- K. whereas shale gas exploitation projects are not generally subject to an environmental impact assessment despite the environmental risks of such projects;
- L. whereas the EU has the role of ensuring a high level of human health protection in all of the Union's policies and activities;
- M. whereas many governments in Europe, such as France, Bulgaria, North Rhine Westphalia in Germany, Fribourg and Vaud in Switzerland, as well as a number of US states (North Carolina, New York, New Jersey, and Vermont and more than 100 local governments) and other countries around the world (South Africa, Quebec in Canada, New South Wales in Australia) currently have a ban or moratorium in place on the use of hydraulic fracturing for the extraction of oil and gas from shale or other 'tight' rock formations;
- N. whereas a number of Member States, such as the Czech Republic, Romania and Germany, are currently considering a moratorium on the exploration and extraction of oil and gas from shale or other 'tight' rock formations;
- O. whereas the Environmental Liability Directive does not oblige operators to take out adequate insurance considering the high costs associated with accidents in the extractive industries;

### **General framework – regulation, implementation, monitoring and cooperation**

- 1. Understands shale gas exploration and extraction to refer to any unconventional hydrocarbon exploration and extraction using horizontal drilling and high-volume hydraulic fracturing methods utilised in fossil fuels industries worldwide;

2. Stresses that, notwithstanding the Member States' exclusive prerogative to exploit their energy resources, any development of UFF should ensure a fair and level playing field across the Union, in full compliance with relevant EU safety and environmental protection laws;
3. Considers that a thorough analysis of the EU regulatory framework specifically regarding UFF exploration and exploitation is needed; welcomes, to this end, the upcoming conclusion of a number of Commission studies on: identification of risks, lifecycle GHG emissions, chemicals, water, land-use and effects of shale gas on EU energy markets; urges Member States to be cautious in going further with UFF until the completion of the ongoing regulatory analysis and to implement all existing regulations effectively as a crucial way of reducing risk in all gas extraction operations;
4. Calls on the Commission, following the completion of its studies, to conduct a thorough assessment on the basis of the European regulatory framework for the protection of health and the environment and to propose, as soon as possible and in line with Treaty principles, appropriate measures, including legislative measures, if necessary;
5. Stresses that UFF extraction, like conventional fossil fuel extraction, has risks; believes that these risks should be contained through pre-emptive measures including proper planning, testing, use of new and best available technologies, best industry practices and continuous data collection, monitoring and reporting conducted within a robust regulatory framework; considers it crucial, before the start of UFF operations, to require measuring for baseline levels of naturally occurring methane and chemicals in groundwater in aquifers and current air quality levels at potential drilling sites; considers, furthermore, that regular involvement of the Original Equipment Manufacturers (OEM) or equivalent equipment manufacturers could ensure that the critical safety and environmental equipment continues to perform effectively and meet safety standards;
6. Notes the Commission's preliminary assessment on the EU environmental legal framework applicable to hydraulic fracturing; urges the Commission to use its powers regarding proper transposition and application of key EU environmental acts in all Member States, and issue without delay guidance on the establishment of baseline water monitoring data necessary for environmental impact assessment of shale gas exploration and extraction, as well as criteria to be used for assessing impacts of hydraulic fracturing on groundwater reservoirs in different geological formations, including potential leakage, and cumulative impacts;
7. Calls on the Commission to introduce an EU-wide risk management framework for unconventional fossil fuels exploration or extraction, with a view to ensuring that harmonised provisions for the protection of human health and the environment apply across all Member States;
8. Calls on the Commission, in cooperation with Member States and the competent regulatory authorities, to introduce ongoing monitoring of developments in this area and take the necessary action to complement and extend existing EU environmental legislation;
9. Notes that methane is a powerful greenhouse gas, the emissions of which must be fully

accounted for under either Directive 2003/87 (ETS) or Decision 406/2009 (the ‘Effort Sharing Decision’);

10. Stresses that the effectiveness of regulation of UFF exploration and extraction – in full compliance with existing EU legislation – ultimately depends on the willingness and resources of the relevant national authorities; calls on Member States, therefore, to ensure sufficient human and technical capacities for monitoring, inspection and enforcement of permitted activities, including proper training for the staff of the competent national authorities;
11. Notes the importance of the work undertaken by reputable institutions, notably the International Energy Agency (IEA), to prepare guidance on best practice regarding regulations for unconventional gas and hydraulic fracturing;
12. Calls for the development of a comprehensive European Best Available Techniques Reference (BREF) for fracking based on robust scientific engineering practice;
13. Calls on those national authorities which have authorised UFF exploration to review existing state regulations on well construction for conventional fossil fuels and to update those provisions covering the specifics of UFF extraction;
14. Recognises that the industry bears primary responsibility for preventing and reacting effectively to accidents; calls on the Commission to consider including operations related to hydraulic fracturing in Annex III of the Environmental Liability Directive and on the relevant authorities to require sufficient financial guarantees by operators for environmental and civil liability covering any accidents or unintended negative impacts caused by their own activities or those outsourced to others; considers that the polluter-pays principle should apply in case of environmental pollution; welcomes the progress made by the industry in setting high environmental and safety standards; stresses the importance of monitoring the industry’s compliance by means of regular inspections carried out by trained and independent specialists;
15. Calls on the energy companies active in the field of UFF extraction to invest in research into improving the environmental performance of UFF technologies; urges EU-based undertakings and academic institutions to develop relevant cooperative R&D programmes leading to greater understanding about safety and risks in UFF exploration and production (E&P) operations;
16. Reiterates its call to the Commission and the Member States, expressed in its resolution of 15 March 2012 on a Roadmap for moving to a competitive low carbon economy in 2050, to push for a faster implementation of the G-20 agreement on removing fossil fuel subsidies; considers that exploration and exploitation of fossil fuel sources, including unconventional sources, must not be subsidised from public funds;
17. Considers that mutual non-disclosure agreements regarding damage to environmental, human and animal health, that have been practised between landowners in the vicinity of shale gas wells and shale gas operators in the US, would not be in line with Union and Member State obligations under the Aarhus Convention, the Access to Information Directive (2003/04/EC) and the Environmental Liability Directive;



## **Environmental aspects of hydraulic fracturing**

18. Recognises that shale gas exploration and extraction may possibly result in complex and cross-cutting interactions with the surrounding environment, in particular owing to the hydraulic fracturing method employed, the composition of the fracturing liquid, the depth and construction of the wells and the area of surface land affected;
19. Acknowledges that the types of rocks present in each individual region determine the design and method of extraction activities; calls for mandatory baseline analysis of groundwater and geological analysis of the deep and shallow geology of a prospective shale play prior to authorisation, including reports on any past or present mining activities in the region;
20. Stresses the need for scientific studies regarding the long-term impact on human health of fracking-related air pollution and water contamination;
21. Calls on the Commission to ensure the effective implementation of laws on mining environmental impact assessment in national legislation; stresses at the same time that each impact assessment should be carried out as an open and transparent process;
22. Recalls that the ‘Guidance note on the application of Directive 85/337/EEC to projects related to the exploration and exploitation of unconventional hydrocarbon’ (Ref. Ares (2011)1339393), issued by the Commission, DG Environment, on 12 December 2011, confirms that Council Directive 85/337/EEC, as amended and as codified by Directive 2011/92/EU, on the assessment of the effects of certain public and private projects on the environment (known as the Environmental Impact Assessment or the EIA Directive) covers exploration and exploitation of unconventional hydrocarbons; recalls, furthermore, that any hydraulic fracturing method used is part of the overall conventional and unconventional hydrocarbon exploration and extraction activities covered by the above-mentioned EU environmental legislation and by Directive 94/22/EC of the European Parliament and of the Council of 30 May 1994 on the conditions for granting and using authorisations for the prospection, exploration and production of hydrocarbons;
23. Calls on the Commission to bring forward proposals to ensure that Environmental Impact Assessment Directive provisions adequately cover the specificities of shale gas, shale oil, and coal bed methane exploration and extraction; insists that prior environmental impact assessment includes full life-cycle impacts on air quality, soil quality, water quality, geological stability, land use and noise pollution;
24. Calls for the inclusion of projects including hydraulic fracturing in Annex I of the Environmental Impact Assessment Directive;
25. Notes that there is a risk of seismic tremors as demonstrated by shale gas exploration in the north-west of England; supports the recommendations of the UK Government commissioned report that operators be required to meet certain seismic and microseismic standards;
26. Recalls that the sustainability of shale gas is not yet proven; calls on the Commission and Member States to assess thoroughly greenhouse gas emissions during the entire process of

extraction and production to prove its environmental integrity;

27. Considers it appropriate, in the context of liability, to provide for the reversal of the burden of proof for shale gas operators, where, in view of the nature of the disturbance and its adverse effects, other possible causes and any other circumstances, the balance of probability indicates that shale gas operations were the cause of the environmental damage;
28. Calls on the Commission to bring forward proposals to explicitly include fracking fluids as ‘hazardous waste’ under Annex III of the European Waste Directive (2008/98/EC);
29. Recognises the relatively high water volumes involved in hydraulic fracturing given that water is a particularly sensitive resource in the EU; highlights the need for advance water provision plans based on local hydrology with consideration for local water resources, the needs of other local water users and capacities for wastewater treatment;
30. Calls on the Commission to ensure that the relevant European environmental standards are met in full, particularly with regard to the water used in hydrofracking, and that breaches are appropriately penalised;
31. Recalls that the Water Framework Directive requires Member States to implement the measures necessary to prevent the deterioration of the status of all bodies of groundwater, including from point sources such as hydrocarbon exploration and extraction;
32. Calls on the industry, in transparent collaboration with national regulatory bodies, environmental groups and communities, to take the measures needed to prevent the status of relevant bodies of groundwater from deteriorating, and thereby maintain good groundwater status as defined in the Water Framework Directive and the Groundwater Directive;
33. Recognises that hydraulic fracturing takes place at a depth well below groundwater aquifers; therefore believes that, as drilling operations cross drinking water sources, the main concern regarding groundwater contamination is often well integrity in terms of the quality of its casing and cementing and its ability to resist the high pressure of the liquid injected and low-magnitude earth tremors;
34. Calls for a blanket ban on hydrofracking in certain sensitive and particularly endangered areas, such as in and beneath drinking water protection areas and in coal mining areas;
35. Stresses that effective prevention requires consistent monitoring of strict adherence to the highest standards and practices in well-bore construction and maintenance; considers that well completion reports should be submitted by operators to the competent authorities; underlines that both industry and competent authorities should ensure, at all stages, regular quality control for casing and cement integrity, as well as baseline groundwater sampling to control the quality of drinking water, conducted in close cooperation with drinking water providers; points out that this requires significant human resources and technical expertise on all levels;
36. Calls on the Commission to issue guidance, without delay, on the establishment of both

the baseline water monitoring data necessary for an environmental impact assessment of shale gas exploration and extraction and the criteria to be used for assessing the impacts of hydraulic fracturing on groundwater reservoirs in different geological formations, including potential leakage and cumulative impacts;

37. Recommends that standardised emergency response plans be prepared jointly by operators, regulators and emergency services and that specialised emergency response teams be set up;
38. Believes that on-site closed-loop water recycling, using steel storage tanks, offers the most environmentally sound way of treating flow-back water by minimising water volumes, the potential for surface spills and costs/traffic/road damage relating to water treatment transportation; believes that this type of recycling should be applied as far as possible; rejects the injection of flow-back waste waters for disposal into geological formations in accordance with provisions of the Water Framework Directive;
39. Calls for strict implementation of existing waste water treatment standards and compulsory water management plans by operators, in cooperation with the drinking water companies and the competent authorities; stresses, however, that existing treatment plants are ill-equipped to treat hydraulic fracturing waste water and may be discharging pollutants into rivers and streams; considers, to this end, that a full assessment of all the relevant water treatment plants in the Member States concerned should be carried on by the competent authorities;
40. Stresses that a minimum safety distance should be maintained between drilling pads and water wells;
41. Believes that many of the current controversies over UFF have partly resulted from an initial refusal by the industry to disclose the chemical content of fracturing fluids; maintains that full transparency is required, with a mandatory obligation for all operators to fully disclose the chemical composition and concentration of fracturing fluids and to fully comply with existing EU legislation under the REACH regulation;
42. Considers that mutual non-disclosure agreements regarding damage to environmental, human and animal health, such as those which have been in force between landowners in the vicinity of shale gas wells and shale gas operators in the US, would not be in line with EU and Member State obligations under the Aarhus Convention, the Access to Information Directive (2003/04/EC) and the Environmental Liability Directive;
43. Notes that multi-horizontal well-bores from one drilling pad minimise land use and landscape disturbance;
44. Notes that the production volumes of shale gas wells in the United States are characterised by a sharp decline after the first two years, which leads to a high intensity of continuous drilling for new wells; notes that the storage tanks, compressor stations and pipeline infrastructure further add to the land use impact of shale gas activities;
45. Calls on those Member States which decide to develop shale gas or other unconventional fossil fuel reserves to send national plans to the Commission detailing how the

exploitation of these reserves fits in with their national emission reduction targets under the EU Effort Sharing Decision;

46. Recognises that constant technological improvements in hydraulic fracturing and horizontal drilling may help improve the safety of UFF and to limit potential environmental effects; encourages industry to continue efforts to advance technology and to use the best technological solutions in developing UFF resources;
47. Calls upon the competent national geological surveys to carry out baseline seismic monitoring in seismically vulnerable areas where permissions for shale gas extraction are granted in order to establish background seismicity which would allow assessment for the possibility and potential impact of any induced earthquakes;
48. Points out that any favourable comparison of lifecycle GHG balance between shale gas and coal is dependent on a one-hundred-year atmospheric lifetime assumption; considers that the necessity to peak global emissions by 2020 would warrant examination over a shorter period, e.g. 20 years, as more appropriate; calls for further scientific research into fugitive methane emissions to improve accounting for such emissions under Member States' annual inventories and targets under the EU Effort Sharing Decision;
49. Urges the Commission to bring forward legislative proposals to make the use of completion combustion devices ('green completions') mandatory for all shale gas wells in the EU, to limit flaring to cases where there are concerns about safety and to completely forbid venting of all shale gas wells, in an effort to reduce the fugitive methane emissions and volatile organic compounds linked to shale gas;

#### **Public participation and local conditions**

50. Recognises that drilling activities can worsen living conditions; calls, therefore, for this issue to be taken into account at the time of the necessary authorisation for the sourcing and exploitation of hydrocarbon resources and for all the necessary measures to be taken, in particular by the industry through the implementation of best available techniques, and by the public authorities through the application of strict regulations, to minimise the adverse consequences of such activities;
51. Calls on the industry to engage local communities and discuss shared solutions to minimise the impact of shale gas developments on traffic, road quality, and noise where development activities are being carried out;
52. Calls on Member States to ensure that local authorities are fully informed and involved, particularly when examining requests for sourcing and exploitation permits; calls, in particular, for full access to impact assessments regarding the environment, residents' health and the local economy;
53. Believes that public participation should be ensured through adequate public information and through public consultation before each stage of exploitation and exploration; calls for greater transparency with regard to impacts and to chemicals and technologies used, as well as greater transparency of all inspections and control measures in order to ensure public understanding and confidence in the regulation of these activities;

54. Recognises that in order to address all issues related to UFF a much better exchange of information among industry, regulators and the public is required;
55. Welcomes in this regard the 2012 EU budget appropriation for such a public dialogue and encourages the Member States to make use of this funding so as to ensure that citizens living in potential UFF development areas are better informed and can effectively participate in decision-making in their local and national governance structures;

### *International aspects*

56. Considers that the use of shale gas and other fossil fuels must be consistent with Article 2 of the United Nations Framework Convention on Climate Change (UNFCCC), which calls for the ‘stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system’ and underlines that substantial lock-in to fossil fuel infrastructures such as shale gas could put this international objective out of reach;
57. Considers that increased shale gas exploration and production worldwide will lead to a considerable increase in fugitive methane emissions and that the overall greenhouse warming potential (GWP) of shale gas has not been evaluated; stresses, therefore, that the exploitation of unconventional oil and gas resources could hamper the achievement of UN Millennium Development Goal (MDG) 7 – ensuring environmental sustainability – and undermine the latest international climate change commitments enshrined in the Copenhagen Accord; notes that climate change already affects poor countries the most; stresses, furthermore, that in addition to the direct effects on health and the environment, the impact of unconventional gas or oil extraction on people’s livelihoods poses a particular threat, particularly in African countries where local communities largely depend on natural resources for agriculture and fisheries;
58. Insists that lessons must be drawn from the USA on the exploitation of shale gas; notes with particular concern that shale gas extraction necessitates very large volumes of water, which may make it difficult to achieve the MDG 7 targets concerning access to clean water and food security, especially in poor countries that already face a severe scarcity of water;
59. Underlines that land acquisitions for oil and gas mining are a major driver of land-grabbing in developing countries, which can pose a significant threat to the world’s indigenous communities, farmers and poor people in terms of access to water, fertile soil and food; notes that, following the 2008 collapse of financial markets, there has been a marked acceleration of global investments in extractive industries from hedge and pension funds, with the effect of encouraging more extraction; underlines, therefore, that all European economic entities should always act in a transparent manner and in close consultation with all appropriate government bodies and local communities on issues of land leases and/or acquisitions;
60. Notes that because it is unclear whether the current regulatory framework of EU legislation provides an adequate guarantee against the risks to the environment and human health resulting from shale gas activities, the Commission is undertaking a series of studies, expected later this year; considers that the lessons learnt from these studies on

shale gas exploitation and recommendations related to it must be fully taken into account by European companies in developing countries; is concerned about the effects of oil companies' activities on the environment, health and development, particularly in Sub-Saharan Africa, given the limited capacity for implementing and enforcing environmental and health protection laws in some countries there; further states that European companies should employ responsible industry standards everywhere they operate;

61. Is worried about potential investment by European companies in unconventional oil or gas resources in developing countries;
62. Stresses that the EU's obligation to ensure policy coherence for development, enshrined in Article 208 TFEU, must be respected; takes the view that, in hosting companies investing in extractive activities, the EU should influence their behaviour to encourage more sustainable practices, such as by strengthening corporate governance standards and regulations applied to the banks and funds that finance them, including by enforcing the Equator Principles, the principles of responsible investment, and the rules of the European Investment Bank and the Basel Committee on Banking Supervision;
63. Recalls that in addition to regulations in the countries where they operate, international oil companies are also subject to the jurisdiction of the courts in the countries on whose stock exchange they are listed; considers that home country regulation should provide an effective means of protecting human rights in situations where accountability gaps exist, on the model of the United States Alien Tort Claims Acts;
64. Notes that many instruments exist that could address the negative social and environmental impact of the activities of extractive industries, such as the Global Reporting Initiative, the UN Global Compact and the OECD Guidelines for Multinational Enterprises; points out, however, that voluntary guidelines are insufficient to mitigate the negative impact of extraction;
65. Notes that the EU Accounting and Transparency Directives are currently being revised, which is an opportunity to prevent tax evasion and corruption by extractive industries;
66. Urges the Commission to identify new options for strengthening standards on the responsibilities of transnational corporations with regard to social and environmental rights and possible means of implementation;
67. Is concerned that some unconventional oil and gas companies operate to different safety standards worldwide; calls for Member States to require companies whose headquarters are in the EU to apply EU standards in all their operations worldwide;
68. Instructs its President to forward this resolution to the Council and Commission and the parliaments of the Member States.

## EXPLANATORY STATEMENT

For the transformation of the energy system by helping to reduce emissions with existing technologies gas will be critical until at least 2030 or 2035. Shale gas and other unconventional gas sources have become potential important new sources of supply in or around Europe. It has been recorded in the Commission's Energy Roadmap 2050 (Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – Energy Roadmap 2050, COM(2011)0885).

In that document, the Commission recognises that as conventional gas production declines. Europe will have to rely on significant gas imports in addition to domestic natural gas and potential indigenous shale gas, and that alongside internal market integration domestic shale gas will relax concerns about the EU's import dependency.

In recent years the extraction of 'unconventional' hydrocarbons, notably shale gas but also shale oil, has led to unprecedented and radical changes in global energy markets. In particular, shale gas has risen from 1.4 % of the US gas market in 2000 to some 17 % in 2011. Global gas prices and trade patterns are being re-shaped, with evident consequences for the EU.

The 'shale gas revolution' is spreading worldwide at a relatively rapid pace. According to some estimates, total shale gas reserves in place in the EU exceed 56 thousand billion cubic metres (BCM) of which some 14 thousand BCM might be technically recoverable. This compares to Norway's conventional reserves of 2,215 BCM and annual production of some 104 BCM, and the EU's annual consumption of indigenous and imported conventional gas of about 522 BCM.

While it is too early to conclude whether significant volumes might be extracted economically in the EU, a number of Member States have permitted shale gas exploration and are preparing for extraction if discoveries allow.

In addition to conventional vertical drilling and modern-computer-aided exploratory methods, two advanced technologies are key to sustainable production of shale gas and shale oil, horizontal drilling and hydraulic fracturing. Horizontal drilling encompasses the drilling of vertical wells to a depth usually greater than two kilometres, with horizontal extensions then following along geological formations for up to three kilometres or more.

Hydraulic fracturing is an extremely seasoned and tested technology used in over of 1.2 million wells since the 1947, principally in Canada and the USA and for 30 years in Europe (latterly in Germany, Sweden, Poland, Spain, Denmark and the UK), is used in conventional hydrocarbon extraction in the EU, and is used or planned to be used on a very wide scale in numerous countries worldwide including Argentina, China, the Ukraine and India.

Besides this background, it is important to monitor worldwide regulatory regimes and practices, and to recognise and address concerns about the environmental effects of shale gas and shale oil extraction. Those focus on the potential consumption of large volumes of water, the potential chemical pollution of groundwater bodies especially of drinking water, on the treatment of waste water and risks to surface waters, on the storage of waste drill cuttings, on site-specific impacts, on

seismic effects, and the possible implications for greenhouse gas (GHG) emissions.

It is important to note that no official or other reputable sources have demonstrated any systematic connexion between shale gas and shale oil extraction and human or animal health. No official or other reputable sources worldwide have demonstrated any cases where hydraulic fracturing has led to contamination of drinking water.

However, it should be emphasised that no human activity can be wholly risk-free. The aim of regulation must be to minimise environmental impact and strike a reasonable balance in the light of science, statistical data and of a full consideration of the risks and rewards (also encompassing the alternatives). Sadly, public discourse has included wilful suppression of some data and much extrapolation from hypothetical or individual incidents to the totality of shale gas and shale oil extraction.

Accordingly, the Commission and the competent national authorities should continue to study the potential environmental effects but on a scientific and statistically-based footing, covering Member States and reputable sources worldwide. They should avoid reliance on ideologically-biased academic.

The Commission and the competent national authorities should foster maximum transparency, and the provision of information to the public based both on proven science and statistics and on a context- and comparator-based assessment of the risks and benefits.

### **Regulation, Implementation, Monitoring and Co-operation**

Under the Treaty on the Functioning of the European Union clearly states in Article 194 (2), that Member States have sovereign rights regarding choice of energy mix, and issuing licences and other approvals for the exploration and exploitation of hydrocarbon resources is a Member State prerogative.

In the EU shale gas and shale oil extraction is governed by the same principles which apply to other types of extraction such as of coal, conventional gas and oil, of water and geothermal energy, and to underground activities such as injection of CO<sub>2</sub> for gas and oil recovery, storage of gas and oil reserves and storage of CO<sub>2</sub> for carbon capture and storage (CCS) purposes.

The Commission considers that unconventional hydrocarbon projects involving the combined use of advanced technological processes such as horizontal drilling and hydraulic fracturing are covered by EU environmental legislation from planning until cessation, 36 instruments being applicable and eight Directives being principally involved. The Commission has confirmed that existing EU and national legislation satisfactorily governs all aspects of shale gas and shale oil extraction.

Under the applicable EIA Directive (Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment) and Mining Waste Directives public opinion has the right to be consulted. Once extraction commences, relevant EU instruments mandate reviews and, if needed, revisions of authorisations. The competent national authorities have monitoring obligations, and failing compliance, extraction can be prohibited.



It is recognised that the effectiveness of EU and Member State legislation ultimately depends on the efficiency of the competent national authorities, so Member States must have regard to strengthening their regulatory, monitoring and enforcement resources in the light of prospects for the extraction of shale gas and shale oil.

Any new EU legislation will destabilise the current adequate network of EU and national regimes, moving them away from the existing safety case approach and giving rise to the risk both of gaps and of redundancies in regulatory cover. The Commission and the competent national authorities should monitor changes in technology worldwide with a view to assessing the adequacy and efficacy at all times of existing legislation and regulatory practice.

Information is already shared within the EU and globally by the Commission, by competent national authorities, and by industry groups. Stronger efforts to share best practices and regulatory experience, including the statistical monitoring of the use and impact of evolving technologies, can lead to significant mutual benefits.

The Commission and competent national authorities should have particular regard to the experience, covering many decades, of exemplary North American regulators such as the British Columbia Oil and Gas Commission and the Energy Resources Conservation Board of Alberta. Initiatives such as that of the Canadian Association of Petroleum Producers in defining best practice on hydraulic fracturing, and of the International Energy Agency to define best practice in shale gas and oil, are to be welcomed.

The competent national authorities should collate and share incident reporting, with due regard for commercial sensitivities, so that lessons can be promptly learned and conclusions drawn. The Commission should assess the efficacy of the various existing information flows among the competent national authorities, with regard for the ensuing administrative burden.

## **Environmental Aspects of Hydraulic Fracturing**

### Water Resources

Water is the principal component of fracturing fluid, and the abstraction and consumption of large amounts of water resources might locally affect the ecological and quantitative status of surface and groundwater sources, and that reduction in water quantity and flow may affect water quality and the associated ecosystems.

Shale gas is among the most water-efficient sources of energy. Contrary to some broadcast impressions, the volumes of water required for extraction are minimal compared to other requirements. Authoritative estimates of water needed in the UK to produce 9 BCM of shale gas annually (some 10% of the UK's current annual gas consumption) are 1.25-1.65 million m<sup>3</sup>, this being 0.14-0.18 % of current annual abstraction for industry (905 million m<sup>3</sup>, excluding electricity generation).

Nevertheless, the Commission and the competent national authorities should monitor the potential use of water resources for extraction in their respective national economies, in the context of other and alternative usages. Producers ought further to reduce water use in fracturing, to continue the search for solutions avoiding the use of fresh water, and to maximise re-usage. The competent

national authorities should continue to have regard in regulatory practice to the effects on the availability and quality of water resources.

### Possible hazardous substances

There is a need to address some concerns in the EU regarding any potential leakages of hydrocarbons, fracturing fluids and other substances into aquifers and into the atmosphere.

Hydraulic fracturing takes place at depths of some two kilometres, and the upward migration of hydrocarbons and fracturing fluids from such levels is practically impossible. Again, no official or other reputable sources worldwide have demonstrated any cases where hydraulic fracturing has led to contamination of drinking water.

The chemicals which are some 0.5 % of fracturing fluids in current practice are made up of additives found in households, and there is a tendency among individual producers and industry groups voluntarily to propose, and for authorities to mandate, full disclosure of the composition of fracturing fluids. Operators are adopting the elimination of any potentially hazardous additives.

Nevertheless, effective water management and ultimate disposal is clearly critical, notably of the flow back water which can contain high concentrations of salts. Competent national authorities should carefully monitor the application of regulatory practices on the casing and cementing of wells.

The Commission should propose best practices, and the competent national authorities should mandate, elimination of potentially hazardous components and full disclosure via publicly-accessible electronic means of fracturing fluid compositions and volumes used.

### **Public participation and local conditions**

Extraction may give rise to a variety of impacts over time, such as the in early phases by diesel- or natural gas-fuelled engines powering drilling equipment and pumps, and in extraction by pumps and compressors. For instance, an 8-well pad may require some 4-6 thousand truck trips over some six months pre-extraction. A typical multi-outlet retail complex generates 15-25 thousand truck trips per annum indefinitely. As with other environmental effects, the context and comparators must be borne in mind.

Disturbances are reduced to a minimum once extraction commences, a producing well's surface equipment covering a few square metres and production being silent. In contrast to most other extractive and industrial processes decommissioned shale gas and shale oil wells typically leave no trace on the surface landscape. Such potential disturbances are to be considered by the competent national authorities in their regulatory activities and specifically in the application of the EIA Directive.

Public participation should be provided by information campaigns before exploration and public consultation on the early stages before exploitation. It is necessary to take greater outreach and public education in unconventional fossil fuels activities to enable public understanding, acceptance and confidence of these activities. It is important to stress that extraction of UFF can be also a great opportunity to strengthen economy, increase employment and development in certain EU regions.



19.6.2012

## **OPINION OF THE COMMITTEE ON DEVELOPMENT**

for the Committee on the Environment, Public Health and Food Safety

on the environmental impacts of shale gas and shale oil extraction activities  
(2011/2308(INI))

Rapporteur: Catherine Grèze

### **SUGGESTIONS**

The Committee on Development calls on the Committee on the Environment, Public Health and Food Safety, as the committee responsible, to incorporate the following suggestions in its motion for a resolution:

1. Emphasises that numerous studies, and experience from the US, demonstrate that a number of serious risks to the environment and health are associated with shale gas extraction; calls on the Commission, the Member States and the EIB neither to fund nor to otherwise support exploration and exploitation of shale gas and oil in developing countries, given the serious sustainability concerns;
2. Stresses that unconventional shale gas mining may pose serious risks with regard to water contamination caused by the use of hazardous chemicals in the fracturing process; is also concerned at the high amount of water used for the fracturing of fluid and at the potentially high emissions of methane, among other things;
3. Considers that the use of shale gas and other fossil fuels must be consistent with Article 2 of the United Nations Framework Convention on Climate Change (UNFCCC), which calls for the ‘stabilisation of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system’ and underlines that substantial lock-in to fossil fuel infrastructures such as shale gas could put this international objective out of reach;
4. Considers that increased shale gas exploration and production world-wide will lead to a considerable increase in fugitive methane emissions and that the overall greenhouse warming potential (GWP) of shale gas has not been evaluated; stresses, therefore, that the exploitation of unconventional oil and gas resources could hamper the achievement of UN Millennium Development Goal (MDG) 7 – ensuring environmental sustainability – and undermine the latest international climate change commitments enshrined in the

Copenhagen Accord; notes that climate change already affects poor countries the most; stresses, furthermore, that in addition to the direct effects on health and the environment, the impact of unconventional gas or oil extraction on people's livelihoods poses a particular threat, particularly in African countries where local communities largely depend on natural resources for agriculture and fisheries;

5. Insists that lessons must be drawn from the USA on the exploitation of shale gas; notes with particular concern that shale gas extraction necessitates very large volumes of water, which may make it difficult to achieve the MDG 7 targets concerning access to clean water and food security, especially in poor countries that already face a severe scarcity of water;
6. Underlines that land acquisitions for oil and gas mining are a major driver of land-grabbing in developing countries, which can pose a significant threat to the world's indigenous communities, farmers and poor people in terms of access to water, fertile soil and food; notes that, following the 2008 collapse of financial markets, there has been a marked acceleration of global investments in extractive industries from hedge and pension funds, with the effect of encouraging more extraction; underlines, therefore, that all European economic entities should always act in a transparent manner and in close consultation with all appropriate government bodies and local communities on issues of land leases and/or acquisitions;
7. Stresses that hydraulic fracking requires an enormous amount of water, and is concerned that in areas which suffer from drought, local communities and farmers may suffer water shortages if their needs are not prioritised;
8. Notes that because it is unclear whether the current regulatory framework of EU legislation provides an adequate guarantee against the risks to the environment and human health resulting from shale gas activities, the European Commission is undertaking a series of studies expected later this year; considers that the lessons learnt from these studies on shale gas exploitation and recommendations related to it must be fully taken into account by European companies in developing countries; is concerned about the effects of oil companies' activities on the environment, health and development, particularly in Sub-Saharan Africa, given the limited capacity for implementing and enforcing environmental and health protection laws in some countries there; further states that European companies should employ responsible industry standards everywhere they operate;
9. Is worried about potential investment by European companies in unconventional oil or gas resources in developing countries;
10. Stresses that the EU's obligation to ensure policy coherence for development, enshrined in Article 208 TFEU, must be respected; takes the view that, in hosting companies investing in extractive activities, the EU should influence their behaviour to encourage more sustainable practices, such as by strengthening corporate governance standards and regulations applied to the banks and funds that finance them, including by enforcing the Equator Principles, the principles of responsible investment, and the rules of the European Investment Bank and the Basel Committee on Banking Supervision;

11. Recalls that in addition to regulations in the countries where they operate, international oil companies are also subject to the jurisdiction of the courts in the countries on whose stock exchange they are listed; considers that home country regulation should provide an effective means of protecting human rights in situations where accountability gaps exist, on the model of the United States Alien Tort Claims Acts;
12. Notes that many instruments exist that could address the negative social and environmental impact of the activities of extractive industries, such as the Global Reporting Initiative, the UN Global Compact and the OECD Guidelines for Multinational Enterprises; points out, however, that voluntary guidelines are insufficient to mitigate the negative impact of extraction;
13. Notes that the EU Accounting and Transparency Directives are currently being revised, which is an opportunity to prevent tax evasion and corruption by extractive industries;
14. Urges the Commission to identify new options for strengthening standards on the responsibilities of transnational corporations with regard to social and environmental rights and possible means of implementation;
15. Is concerned that some unconventional oil and gas companies operate to different safety standards world-wide; calls for Member States to require companies whose headquarters are in the EU to apply EU standards in all their operations world-wide;

## RESULT OF FINAL VOTE IN COMMITTEE

<b>Date adopted</b>	19.6.2012
<b>Result of final vote</b>	+: 16 -: 1 0: 9
<b>Members present for the final vote</b>	Thijs Berman, Michael Cashman, Véronique De Keyser, Nirj Deva, Leonidas Donskis, Charles Goerens, Catherine Grèze, Filip Kaczmarek, Michał Tomasz Kamiński, Gay Mitchell, Jean Roatta, Birgit Schnieber-Jastram, Michèle Striffler, Keith Taylor, Eleni Theocharous, Patrice Tirolien, Ivo Vajgl, Anna Záborská, Iva Zanicchi
<b>Substitute(s) present for the final vote</b>	Agustín Díaz de Mera García Consuegra, Gesine Meissner, Csaba Óry, Judith Sargentini, Patrizia Toia
<b>Substitute(s) under Rule 187(2) present for the final vote</b>	Ioan Enciu, Gabriele Zimmer

21.6.2012

## **OPINION OF THE COMMITTEE ON LEGAL AFFAIRS**

for the Committee on the Environment, Public Health and Food Safety

on the environmental impacts of shale gas and shale oil extraction activities  
(2011/2308(INI))

Rapporteur: Eva Lichtenberger

### **SUGGESTIONS**

The Committee on Legal Affairs calls on the Committee on the Environment, Public Health and Food Safety, as the committee responsible, to incorporate the following suggestions in its motion for a resolution:

1. Understands shale gas exploration and extraction to refer to any unconventional hydrocarbon exploration and extraction using horizontal drilling and high-volume hydraulic fracturing methods utilised in fossil fuels industries worldwide;
2. Recognises that shale gas exploration and extraction can possibly result in complex and cross-cutting interactions with the surrounding environment, in particular owing to the hydraulic fracturing method employed, the composition of the fracturing liquid, the depth and construction of the wells and the area of surface land affected;
3. Notes that shale gas exploration and extraction are covered by several pieces of EU environmental legislation, including the Environmental Impact Assessment Directive (85/337/EEC), the Environmental Liability Directive (2004/35/EC), the Mining Waste Directive (2006/21/EC), the Seveso II Directive (96/82/EC), the Habitats Directive (92/43/EEC), the Regulation on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH - 1907/2006), the Biocidal Products Directive (98/8/EC) and the Water Framework Directive (2000/60/EC);
4. Recalls the right of each Member States, in accordance with Article 194 TFEU, to determine the conditions for exploiting its energy resources, its choice between different energy sources and the general structure of its energy supply, provided that the *acquis communautaire*, especially in the field of environmental legislation, is fully respected;
5. Recalls that the Water Framework Directive requires Member States to implement the measures necessary to prevent the deterioration of the status of all bodies of groundwater,



including from sources coming from a specific point such as hydrocarbon exploration and extraction;

6. Calls on the Commission to make a comprehensive review of existing legislation and, if appropriate, to bring forward proposals to ensure that the provisions of the Environmental Impact Assessment Directive adequately cover the specificities of shale gas exploration and extraction, to include hydraulic fracturing in Annex III to the Environmental Liability Directive, to require adequate financial security or insurance to cover environmental damages, and to have shale gas extraction included under the Industrial Emissions Directive (2010/75/EU) and made subject to the requirements regarding Best Available Techniques, in addition to the waste water treatment requirements under the Mining Waste Directive;
7. Recalls that the ‘Guidance note on the application of Directive 85/337/EEC to projects related to the exploration and exploitation of unconventional hydrocarbon’ (Ref. Ares (2011)1339393), issued by the Commission, DG Environment, on 12 December 2011, confirms that Council Directive 85/337/EEC, as amended and as codified by Directive 2011/92/EU, on the assessment of the effects of certain public and private projects on the environment (known as the Environmental Impact Assessment or the EIA Directive) covers exploration and exploitation of unconventional hydrocarbons; recalls, furthermore, that any hydraulic fracturing method used is part of the overall conventional and unconventional hydrocarbon exploration and extraction activities covered by the above-mentioned EU environmental legislation (see Paragraph 3) and by Directive 94/22/EC of the European Parliament and of the Council of 30 May 1994 on the conditions for granting and using authorisations for the prospection, exploration and production of hydrocarbons;
8. Calls on the Commission to issue guidance, without delay, on the establishment of both the baseline water monitoring data necessary for an environmental impact assessment of shale gas exploration and extraction and the criteria to be used for assessing the impacts of hydraulic fracturing on groundwater reservoirs in different geological formations, including potential leakage and cumulative impacts;
9. Calls on the industry, in transparent collaboration with national regulatory bodies, environmental groups and communities, to take the measures needed to prevent the status of relevant bodies of groundwater from deteriorating, and thereby maintain the good groundwater status as defined in the Water Framework Directive and the Groundwater Directive;
10. Considers that mutual non-disclosure agreements regarding damage to environmental, human and animal health, such as those which have been in force between landowners in the vicinity of shale gas wells and shale gas operators in the US, would not be in line with EU and Member State obligations under the Aarhus convention, the Access to Information Directive (2003/04/EC) and the Environmental Liability Directive;

## RESULT OF FINAL VOTE IN COMMITTEE

<b>Date adopted</b>	19.6.2012
<b>Result of final vote</b>	+: 21 -: 0 0: 0
<b>Members present for the final vote</b>	Raffaele Baldassarre, Luigi Berlinguer, Sebastian Valentin Bodu, Christian Engström, Marielle Gallo, Giuseppe Gargani, Lidia Joanna Geringer de Oedenberg, Klaus-Heiner Lehne, Antonio Masip Hidalgo, Alajos Mészáros, Evelyn Regner, Francesco Enrico Speroni, Rebecca Taylor, Alexandra Thein, Cecilia Wikström, Tadeusz Zwiefka
<b>Substitute(s) present for the final vote</b>	Piotr Borys, Cristian Silviu Buşoi, Eva Lichtenberger, Dagmar Roth-Behrendt, Axel Voss
<b>Substitute(s) under Rule 187(2) present for the final vote</b>	Patrice Tirolien

## RESULT OF FINAL VOTE IN COMMITTEE

<b>Date adopted</b>	19.9.2012
<b>Result of final vote</b>	+:               63 -:                1 0:                1
<b>Members present for the final vote</b>	Sophie Auconie, Pilar Ayuso, Paolo Bartolozzi, Sergio Berlato, Lajos Bokros, Milan Cabrnich, Martin Callanan, Nessa Childers, Tadeusz Cymański, Esther de Lange, Bas Eickhout, Edite Estrela, Karl-Heinz Florenz, Elisabetta Gardini, Gerben-Jan Gerbrandy, Nick Griffin, Matthias Grootte, Cristina Gutiérrez-Cortines, Satu Hassi, Jolanta Emilia Hibner, Dan Jørgensen, Karin Kadenbach, Christa Kläß, Eija-Riitta Korhola, Holger Kraemer, Jo Leinen, Corinne Lepage, Peter Liese, Zofija Mazej Kukovič, Linda McAvan, Radvilė Morkūnaitė-Mikulėnienė, Miroslav Ouzký, Vladko Todorov Panayotov, Antonia Parvanova, Andres Perello Rodriguez, Mario Pirillo, Pavel Poc, Frédérique Ries, Anna Rosbach, Oreste Rossi, Dagmar Roth-Behrendt, Kārlis Šadurskis, Carl Schlyter, Horst Schnellhardt, Richard Seiber, Theodoros Skylakakis, Bogusław Sonik, Claudiu Ciprian Tănăsescu, Salvatore Tatarella, Thomas Ulmer, Anja Weisgerber, Åsa Westlund, Glenis Willmott, Marina Yannakoudakis
<b>Substitute(s) present for the final vote</b>	Margrete Auken, Nikos Chrysogelos, Vittorio Prodi, Michèle Rivasi, Marita Ulvskog, Kathleen Van Brempt, Andrea Zanonì
<b>Substitute(s) under Rule 187(2) present for the final vote</b>	Andrzej Grzyb, Lena Kolarska-Bobińska, Jacek Włosowicz, Inês Cristina Zuber