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IMPACT ASSESSMENT

Accompanying document to the

Proposal for a

COUNCIL REGULATION

on State aid to facilitate the closure of uncompetitive coal mines

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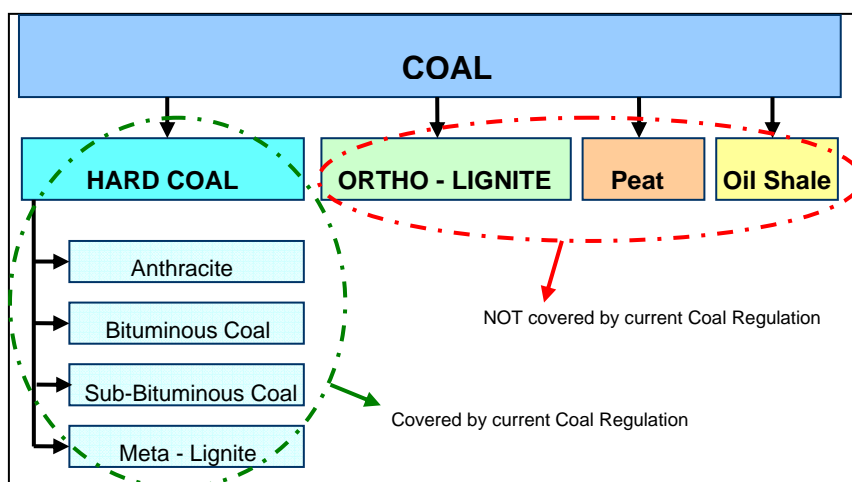
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1. INTRODUCTION

Aid to the EU hard coal industry is regulated by a sector-specific legal instrument: Council Regulation (EC) No 1407/2002 of 23 July 2002 *on State aid to the coal industry* (the "Coal Regulation"). The historical background to this Regulation is given in annex 1.

It applies to hard coal only, as shown in the following figure. Other types of coal, such as ortho-lignite, are covered by the general State aid rules of the EU.



Out of the 10 hard coal-producing Member States, 6 countries are giving at least some form of State aid under the Coal Regulation until 2010: mainly **Germany** and **Spain**, and to a lesser extent also **Hungary**, **Poland**, **Romania** and **Slovakia**.

The Coal Regulation expires on 31 December 2010. In the absence of a new sector-specific legal instrument, the general State aid rules will apply to hard coal (as is already the case today for ortho-lignite). The possibilities to provide State aid to the hard coal industry are much more restricted under the general State aid rules than under the Coal Regulation. But according to recent studies, the hard coal mines of some Member States would still need State support after 2010 in order to survive. Without a new coal-specific legal instrument allowing the kind of State aid which is available under the Coal Regulation, these coal mines would have to close.

This report assesses whether a specific policy instrument is needed to cushion the negative effects of coal mine closures, especially the social and environmental impact.

2. PROCEDURAL ISSUES AND CONSULTATION OF INTERESTED PARTIES

2.1. Organisation and timing

Work on these issues already started in 2006 in view of the Commission report under Article 11 of Regulation (EC) No 1407/2002¹. The Commission's report was adopted in May 2007 and concluded against a revision of the existing Regulation. The work on the present impact assessment was taken up in 2009 in view of assessing the need for a new legal instrument after 2010.

This impact assessment has been prepared by DG Energy and Transport (TREN) with the contribution of an Inter-services Steering Group in which the following Directorates General participated: the Secretariat General, the Legal Service, DG Competition, DG Enterprise, DG Environment, DG Regional Policy, DG Employment, Social Affairs and Equal Opportunities.

The Commission's Impact Assessment Board examined a preliminary draft of this Impact Assessment Report at its meeting of 21 October 2009. A revised version of the report was examined by the Board in December 2009. This revised report takes fully account of the Board's Opinions adopted on 26 October and 18 December 2009, mainly on the following points:

- It clarifies that the main problems addressed by this initiative are of a social and environmental nature and that the impact on the internal market and on competition is limited. Detailed figures on intra-EU trade of hard coal confirm the limited internal market dimension. This fact has been taken into account in the analyses and conclusions.
- The specific problems of the concerned regions and the social problems faced by redundant coal miners have been analysed more in depth.
- Given that it was the preferred option of a large part of the stakeholders, a prolongation of the current Coal Regulation has been analysed as a full option alongside the other policy options.
- The content of the policy options has been explained more fully.
- The extent of the environmental problems in case of sudden closure of the mines and similar budgetary impact of the various policy options have been better explained.

This proposal is part of the Commission's work programme for 2009 (number 2009/TREN/047).

¹ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – Commission Report on the Application of Council Regulation (EC) No 1407/2002 on State Aid to the Coal Industry – COM(2007) 253, 21.5.2007;
<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0253:FIN:EN:PDF>

2.2. Consultation and expertise

Outside expertise

The Commission commissioned two studies. The first one, carried out by the consulting firm *Europe Economics*², evaluated the application of the Coal Regulation up to 2006 and assessed options for the future. The second one, carried out by *Ecorys*³, assessed more specifically the options in the absence of the coal-specific State aid instrument after 2010.

Public consultation

The preparation of this report has been preceded by a public consultation in order to gather as many comments and suggestions as possible from the individuals and bodies concerned. This exercise respected the minimum standards for consultation of interested parties as defined in the Communication from the Commission of 11 December 2002 - COM(2002) 704.

An open internet consultation was carried out between 13 May and 15 July 2009. To this effect, the Commission services published a consultation paper (http://ec.europa.eu/competition/consultations/2009_coal/index.html). The paper described the problem at hand, the policy objectives and various policy options which stakeholders were invited to comment. In addition, the Sectoral Social Dialogue Committee "**Extractive Industries**" was consulted in a plenary meeting on 4 June 2009.

The Commission received 60 contributions. A summary of the contributions is given in Annex 3. The main views expressed are reproduced here.

The respondents of the coal industry and of the mining equipment industry generally argue in favour of the continuation of the State aid categories currently allowed under the Coal Regulation. The social partners stress that such continuation would be necessary to support the sector's restructuring efforts, to limit its social and regional impact, and to ensure the security of supply of energy by guaranteeing the access to coal as an indigenous energy source. They call for a prolongation of the Coal Regulation and ask at least for a new Community regime on State aid for the reduction of activity as well as for mine closures and inherited liabilities.

Several respondents emphasize that a part of the electricity power plants were specifically designed to be fired with the coal of a given (nearby) mine. The adaptation of these power plants to other coal types or even to other energy sources would be very expensive and in some cases even technically impossible. If the expiry of the Coal Regulation led to the closure of the nearby mines, then these power plants would encounter difficulties to continue their production.

² Evaluation of State aid for the coal industry, a report by Europe Economics and Fraunhofer ISI with BSR Sustainability and the Krakow Institute for Sustainable Energy, October 2006.

³ An evaluation of the needs for State aid to the coal industry, Ecorys, December 2008, study prepared for the European Commission, see http://ec.europa.eu/competition/consultations/2009_coal/index.html

Conversely, the environmental organisations do not favour a new sector-specific State aid regime for the coal sector. They argue that State aid to coal mining has a negative impact on the energy production from clean, sustainable and renewable sources and it does not provide incentives for the energy efficiency and savings. According to them, if coal mines were to close, this would have a medium-term favourable environmental impact, by the increasing use of alternative energy sources. Finally, these organisations also believe that, by not prolonging this specific regime, subsidies could be redirected at supporting the workforce of the coal mines in retraining and finding other jobs. They argue that more jobs could be created in the renewable energy sector than would be lost in the coal sector.

The governments of Spain, Slovakia, Hungary and Romania are in favour of a prolongation of the current Coal Regulation. They refer to the necessity to ensure the security of energy supply by continuing the production of indigenous coal and to the impact that mine closures would have on regional unemployment. Poland pleads for a new Regulation allowing investment aid and aid for inherited liabilities. Germany favours sector-specific rules that would allow State aid in the context of the gradual closure of its mines until 2018; this would allow using all possibilities of retraining and (early) retirement in order to avoid direct job losses.

The Czech Republic and Bulgaria currently do not grant State aid based on the Coal Regulation, but they concede that a coal-specific legal instrument may become useful in future years. The United Kingdom prefers the issue of an information note or Commission Guidelines on the application of general State aid rules to the hard coal sector instead of new sector-specific rules. However, the UK acknowledges that circumstances may arise in which an appropriate programme of well-defined and time-limited aid could be justified to secure the survival of an otherwise viable undertaking. Furthermore, well defined investment aid could help potentially viable undertakings to maintain access to reserves.

3. PROBLEM DEFINITION

3.1. What is the issue or problem that may require action and how will it evolve?

This section will show that, in the absence of sector-specific rules after the expiry of the Coal Regulation on 31 December 2010, a number of coal mines in the EU will remain uncompetitive and will have to close. This would result in up to 100000 job losses – of which 42000 job losses in the coal industry and more than 55000 job losses in related industries - and a considerable social impact concentrated on a few regions.

3.1.1. Lack of competitiveness of hard coal mining in some Member States

In some Member States, hard coal mines remain uncompetitive after the expiry of the Coal Regulation in 2020. A recent study carried out by *Ecorys*⁴ for the Commission

⁴ An evaluation of the needs for State aid to the coal industry, Ecorys, December 2008, study prepared for the European Commission.

looked at the European coal production costs and compared them with market prices, as far as available⁵.

Table 1: overview of Unit Production Cost by Member State, by Coal Type

Country	Coal Type	Year	Unit Production Cost (€/ tce)
WORLD PRICE	Hard Coal (CIF ARA)	2008	50-80 €/ tce
BULGARIA	Hard Coal		N/A (competitive)
CZECH REPUBLIC	Hard Coal		N/A (competitive)
GERMANY	Hard Coal	2008	151 €/ tce
HUNGARY	Meta-Lignite	2006	70,62 €/ tce
ITALY	Bituminous		N/A
POLAND	Bituminous	2006	47,74 €/ tce
ROMANIA	Hard Coal	2007	159,57 €/ tce
SLOVAKIA	Sub-Bituminous	2007	29,4 €/ tce
	Meta-Lignite	2007	Approx. 72 €/ tce
SPAIN	Hard Coal	2007	120-150 €/ tce (non-HUNOSA) 400 €/tce (HUNOSA)
UK	Hard Coal	2006	56 €/ tce

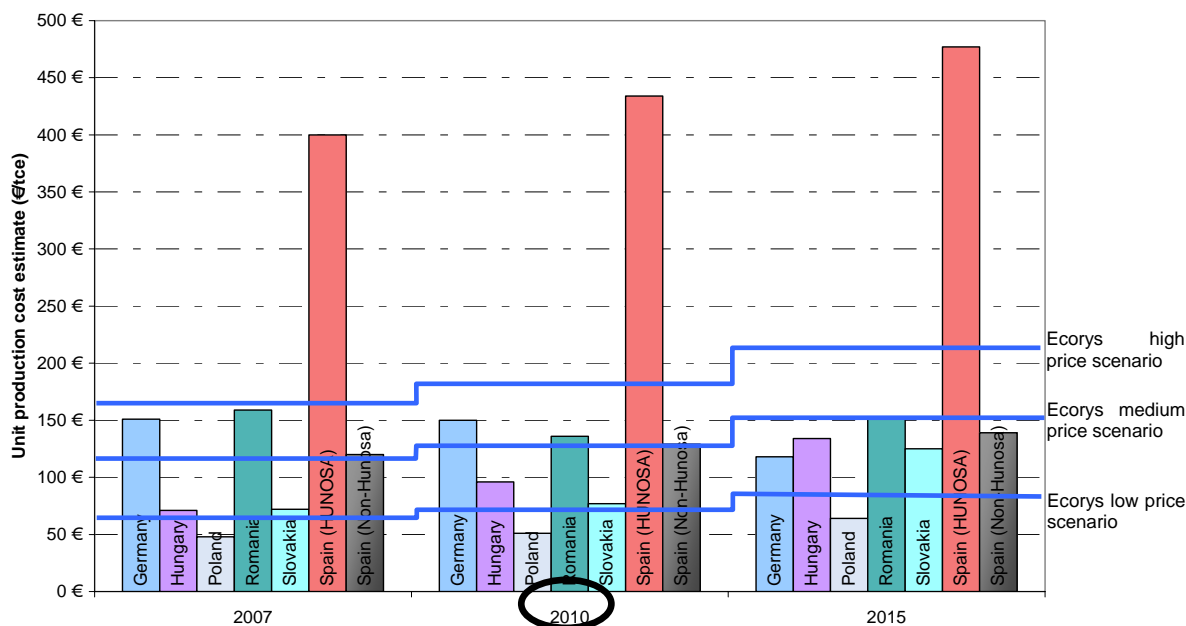
Source: Ecorys study

The unit production costs vary considerably between Member States, dependent upon the geological mining conditions, the quality of the extracted coal and labour costs. From this table, it appears that some Member States face very high unit production costs compared to current world market prices and therefore have an economically uncompetitive production of hard coal today and most likely in the future: especially Germany, Romania and Spain stand out.

The Ecorys study has analysed the necessity of production aid post-2010 based on forecasted unit production costs versus various potential world coal price scenarios. The following chart from the study shows the three considered scenarios (each horizontal line stands for a different hypothesis for the price evolution).

⁵ For ortho-lignite, there is no world market price because there is virtually no trade of such coal: due to high transportation costs and low calorific value, low-grade coal needs to be consumed in geographic proximity to the place of production.

Chart 1: world coal price scenarios (CIF ARA) vs. predicted unit production costs, (adjusted for inflation)



Source: Ecorys study

This graph shows that Poland under none of the future coal price scenarios is likely to require production aid. Polish unit production cost is forecasted to remain just below the baseline scenario in the time period of concern, unless labour costs (i.e. salaries) increase faster than currently assumed (more than 7% per annum). On the other end, Spain's public production (HUNOSA), which represents approximately 9% of total Spanish hard coal production, is predicted to require production aid under any of the future coal price scenarios.

The remaining currently coal-subsidising countries, as well as Spain's private production, would all be able to produce competitive coal only if the world coal price would rise to at least €150. According to the Ecorys study, at a lower world coal price of €100, in addition to Poland, also Hungary, Slovakia and potentially Spain's private production could be competitive. But in the same €100 scenario, Germany, Romania and Spain's public production (HUNOSA) would still remain uncompetitive.

If world prices stay around today's level of around €50-80, only Polish mines will be able to produce competitive hard coal. Without any subsidies, at least some hard coal mines in the other five (currently subsidising) countries would have to cease production, resulting in a production shortfall of up to 22 million tce or about 20% of the EU hard coal production⁶.

⁶ It should not be assumed that all this production would continue even in case the Coal Regulation would apply after 2010. Indeed, even if aid is allowed, there is no obligation for Member States to subsidize uncompetitive mines.

In this context, it must be noted that recent forecasts⁷ with regard to coal prices are rather at the lower end as they are expected to remain below €100 until 2020.

Table 2: predictive situation in 2010 in coal subsidising Member States⁸

	Production (tce)	Jobs	Production aid (mio €)	Investment aid (mio €)	Aid for exceptional costs (mio €)	Share of subsidised coal in national electricity generation (2006)
Poland	74 300 000*	110 713	0	0	80	42.5% ⁹
Germany	13 325 000	21 200	1 150	0	868	9%
Spain	5 900 000	5 800**	425	0	600	14%
Romania	2 295 000	9 770	70.3	0	3	7%
Hungary	935 500	1 300	27.1	0	0	3.6%
Slovakia	891 500	4 000	0	0.7	2.1	22%
Total	97 647 000	152 783	1 672	0.7	1 553.1	

Source: Ecorys study + Commission

* figure for 2007

** does not include sub-contractors

3.1.2. Likely mine closures after the expiry of the Coal Regulation in 2010

The Coal Regulation expires on 31 December 2010. In the absence of a new legal framework allowing for certain specific types of State aid to the coal industry, Member States could grant aid only within the limits foreseen by general State aid rules applicable to all sectors.

Compared to the Coal Regulation, the general State aid rules significantly reduce the possibilities for State aid to the coal industry, especially but not only with regard to production aid. However, as shown above, the hard coal production of some Member States is likely to remain uncompetitive in future years and would only survive with continued State support beyond 2010.

Germany has notified a closure plan to the Commission that foresees the gradual closure of all German hard coal mines by 2018. The gradualism of the plan is designed to cushion the social impact by avoiding lay-offs as far as possible. But in the absence of a new sector-specific legal instrument for the period after 2010, the plan cannot be approved as it goes beyond what is allowed under general State aid rules. Also the

⁷ Global Insight – global steam coal trade and price outlook (March 2009), International Energy Agency – World Energy Outlook 2009 (November 2009).

⁸ Based on past trends or on production plans.

⁹ In this particular case, a relatively small amount is distributed over a high number of production units.

Spanish and the Romanian authorities have signalled that they need to provide continued support to their hard coal mines after 2010.

The general State aid rules do offer some possibilities, but they are far more restrictive than the rules enshrined in the current Coal Regulation:

- **Operating aid** to accompany the process of closure of undertakings is foreseen in other sectors such as shipbuilding¹⁰ or the steel industry¹¹, but it is strictly limited; it cannot be excluded that similar measures could be declared compatible in the coal sector on the basis of Art. 107(3)(c) TFEU (via the adoption of EU rules for such measures; see policy option 2 in section 5).
- **Investment aid** could only be authorized in regions which are eligible under the Regional Aid Guidelines, should the substantive rules of these guidelines be applied to the coal mining sector¹². Investment aid refers to the setting-up of a new establishment, the extension of an existing establishment, the diversification of the output of an establishment into new, additional products, or a fundamental change in the overall production process of an existing establishment. Replacement investments are excluded¹³.
- As far as the State aid for **inherited liabilities**¹⁴ is concerned, aid for the rehabilitation of former mining sites could in certain circumstances be eligible under the Environmental Aid Guidelines¹⁵, insofar as "*the person responsible for the pollution is not identified or cannot be made to bear the costs*". Certain aid for social inherited liabilities could perhaps be declared compatible on the basis of Art. 107(3)(c) TFEU, via the adoption of EU rules for such measures, taking account of similar measures existing for the steel and shipbuilding sectors; this concerns payments to workers made redundant or accepting early retirement, the costs of counselling services to workers made redundant or retired before the legal retirement age and costs for vocational training¹⁶. Furthermore, aid for the retraining of former coal miners could up to a certain extent be authorised based on the rules for training

¹⁰ Framework on aid to shipbuilding (OJ C 317, 30.12.2003, p. 11), see §3.3.2 (closure aid).

¹¹ Communication from the Commission: Rescue and restructuring aid for the steel sector (OJ C 70, 19.3.2002, p. 21), see § 2.2.

¹² The Guidelines on national regional aid cover low grade C coal production but currently exclude the rest of the coal sector from their scope as the latter is subject to special rules laid down by the Coal Regulation.

¹³ This has been confirmed by the Commission decision in the case C 57/2007 (ex-N 843/2006) – Slovakia (OJ L 248, 17.9.2008, p. 19).

¹⁴ According to the Guidelines on rescue and restructuring aid, in certain sectors, restructuring aid may be allowed in the case of closure of a company. This concerns aid to alleviate the social costs of restructuring and the environmental aid to clean up polluted sites which might otherwise be abandoned. The coal sector is currently excluded from this measure. Community guidelines on State aid for rescuing and restructuring firms in difficulty (OJ C 244, 1.10.2004, p. 2), see §42.

¹⁵ Community Guidelines on State aid for Environmental Protection (OJ C 82, 1.4.2008, p.1).

¹⁶ Framework on aid to shipbuilding (see footnote 7), §17, and Rescue and restructuring aid for the steel sector (see footnote 8), §2.1.

aid in the GBER¹⁷. Note that, in so far as inherited liabilities result from statutory provisions, the State would need to honour most of these payments even if the mining companies were to go bankrupt. It must be stressed that when Member States pay for inherited liabilities, these payments might not constitute State aid if the concerned companies have ceased all economic activities and may not resume such activities¹⁸. Indeed, if a coal company is going through a liquidation process, possibly because it cannot honour its social and environmental liabilities, it does not mean that the public authorities will be prevented from dealing with the social and environmental consequences of past coal mining activities and mine closures in the concerned area. Furthermore, if the State finances social or environmental programmes in coal mining areas, no State aid is involved if such programmes fall outside the scope of the social and environmental liabilities of undertakings¹⁹.

The Ecorys study has analysed which options would be available to Member States under the general State aid rules for granting State aid to the coal mining industry²⁰:

- Regional aid: in some cases, coal mines are situated in eligible areas for regional investment aid. However, such aid can only be authorized in specific cases. However, it may be significant in the case of Slovakia where already now most of the aid for the coal sector is initial investment aid (although its amount is quite small).
- Rescuing and restructuring aid would only be applicable if there is a perspective of profitability after restructuring. In most cases, coal mines do not fulfil the conditions for this kind of aid.
- Other types of aid, such as de minimis aid, training aid or SME training and employment aid could be applied, but would only have a marginal impact given the large subsidy requirements and the size of the coal sector.

It follows that the expiry of the Coal Regulation will force some Member States to close their hard coal mines and to cope with the social consequences. Given the regional concentration of coal mines (e.g. Ruhrgebiet in Germany, the north-west of Spain, the

¹⁷ Commission Regulation (EC) No 800/2008 declaring certain categories of aid compatible with the internal market in application of Articles 87 and 88 of the Treaty (General Block Exemption Regulation) (OJ L 214, 9.8.2008, p. 3).

¹⁸ The Commission has come to such a conclusion in the decision it took in case N 261/2007 – Bulgaria – *Support to coal sector*.

¹⁹ For example, the State should be able to finance training programmes for former miners which the coal mining company is not legally bound to finance.

²⁰ Ecorys also refers to Article 11 of the Electricity Directive 2003/45 which enables Member States to impose on undertakings operating in the electricity sector to use indigenous energy fuel sources for up to 15% of the overall energy necessary to produce the electricity consumed in the Member State concerned. It refers to Commission decisions concerning electricity produced out of indigenous coal (Case NN49/99 – Spain – Scheme for competition transition costs - OJ C 268, 22.9.2001, p. 7), ortho-lignite (Case N34/1999 – Austria – Compensation of stranded costs - OJ C 5, 8.1.2002, p. 2) and peat (Case N6a/2001 – Ireland – Public service obligations imposed on the Electricity Supply Board with respect to the generation of electricity out of peat – OJ C 77, 28.3.2002, p. 26). However, it must be noted that these decisions only concern electricity producers and that the Commission did not assess these cases as indirect subsidisation of the coal sector. Such aid would go far beyond the objective of softening the social and environmental impact of mine closures by keeping uncompetitive mines indefinitely open.

Jiu Valley in Romania), the social impact of the simultaneous closure of the mines could be significant.

3.1.3. *Spill-over effects on other industries*

Indigenous coal production has positive externalities in the form of spill-over effects on other industries, such as increased innovation in the European mining technology, geology and environmental technology sectors. The *Europe Economics Study* shows that the existence of a European coal industry creates spill-over effects for other sectors of the economy, such as the producers of mining equipment and the producers of environmental technologies which are needed for securing the mine and during the clean up of the mine.²¹

If the expiry of the Coal Regulation leads to the close-down of mines, these cannot innovate anymore. This may have negative spill-over effects on related sectors such as mining technology, geology and environmental technologies. However, it must be borne in mind that the expiry of the Coal Regulation would not put in jeopardy the entire EU coal mining sector and in fact, would only affect a limited proportion of the existing EU hard coal production. Mines that can survive with normal State aid possibilities or without State aid at all will continue to innovate under the competitive pressures of the global coal market, which is expected to keep on spurring innovation. But overall, the study reveals that a stop of subsidies seems rather to have net negative spill-over effects on other sectors situated in the Member States where all hard coal production would cease.

Industry associations consider it important to have a domestic "test bed" for mining equipment. They indicate that a complete closure of all domestic mines might harm this industry which has developed its products in proximity of the mining activities allowing it to export its competitive products worldwide. The extent of these difficulties has not been established²², but one should not dramatize. In particular, the same associations have not clarified why such companies would not be able to test their technology in the mines of the potential customers in other countries. It must also be remarked that many companies active in this sector not only develop and produce technologies for the hard coal sector, but also for the mining of other energy sources and raw materials. And anecdotic evidence shows that some of these companies established in Europe – even SMEs - have already successfully redirected their activities towards exporting to third countries.

3.1.4. *The social impact of mine closures*

In the absence of any State aid beyond the general State aid rules, hard coal production would probably have to cease – partially or entirely - in Germany and Spain, and perhaps in some other Member States, too. Under present policies, about 27000 mine workers will still be employed in Germany and Spain in 2010, but might lose their jobs in the following years. In Romania and Hungary, a further 11000 mine workers' jobs may be threatened by the end of subsidies. And, according to the *Ecorys* study, also coal

²¹ See *Europe Economics Study*, Chapter 6 (see footnote 3).

²² Note that no specific associations of the mine technology sector have responded to the public consultation. The above-mentioned comments stem from associations of coal-mining companies.

mining in Slovakia may become uncompetitive without subsidies, which concerns a further 4000 jobs.

These figures only take account of directly affected jobs in the coal industry. More jobs may be affected in related undertakings. For example, in Spain these figures do not take account of the many sub-contractors of the mines and in Germany, the closure of the mines may affect undertakings producing mining technologies. Furthermore, the multiplier effects on other economic sectors, especially in the concerned regions, are not taken account of. Industry associations indicate that for each coal miner, a further 1.3 employees of related industries may be affected.

While the jobs lost usually have a limited impact on EU-wide and national unemployment figures, their regional and local impact may be very significant, especially in Germany, Spain and Romania. The following table shows the regional unemployment rates of the regions where hard coal production is at risk. It also shows the percentage of hard coal jobs in the active population which can be seen as an indicator by how much the unemployment rate would increase in case all coal jobs in these regions would be lost (not taking account of indirect job losses though). The last column gives an idea of the level of income per capita for the regions concerned (compared to the EU average).

Table 3: economic indicators for selected²³ coal mining regions (2008)²⁴

Country	NUTS region	Region	Unemployment rate ²⁵	Hard coal jobs as % of active population	Per capita income at purchasing power parity (EU=100)
Germany			7.5%	0.05%	115.8
	DEA 1	Düsseldorf	7.4%	0.2%	127.7
	DEA 3	Münster	6.4%	1.0%	98.1
	DEC	Saarland	7.1%	0.8%	112.2
Spain			11.3%	0.03	104.1
	ES 12	Asturias	8.4%	0.5%	94.2
	ES 24	Aragon	7.1%	0.1%	111.7
	ES 41	Castilla y Leon	9.5%	0.2%	99.2
	ES 42	Castilla – La Mancha	11.6%	0.1%	81.1
Hungary			7.8%	0.03%	63.6
	HU 21	Közep-Dunantul	5.8%	0.3%	57.6

²³ Poland is not shown in this table because the impact of the Coal Regulation expiry is expected to be small given the competitiveness of Polish hard coal. For information, hard coal mines employ over 110 000 persons in Poland, which represents more than 4% of the active population in the two regions mainly concerned (the Silesian and Lublin provinces).

²⁴ The number of coal jobs taken into account is the one expected for end 2010 (see Table 2).

²⁵ The latest figures for regional unemployment are for 2008. There are more recent figures for national unemployment which indicate that unemployment rates have significantly increased in 2009 due to the economic and financial crisis. For September 2009, Eurostat published the following figures: 7.6% in Germany, 19.3% in Spain, 6.4% in Romania, 9.7% in Hungary, 12% in Slovakia.

Romania			5.8%	0.1%	38.4
	RO 42	Vest	5.7%	1.1%	44.7
Slovakia			9.5%	0.2%	63.5
	SK 02	Zapadne Slovensko	6.4%	0.4%	62.8
	SK 03	Stredne Slovensko	13.1%	0.03%	49.2

Source: Eurostat

Taking as simple rule of thumb that for each coal job a further 1.3 jobs would be lost in the regions concerned, the unemployment rate on the national level would be hardly affected by the loss of the coal jobs, but regional unemployment rates (at NUTS2 level) could increase by up to 2.5 percentage points. The most affected regions would be Münster and Saarland in Germany, Asturias in Spain and Vest in Romania.

However, these employment figures do not show the full problems that coal mine closures can create for the affected regions and localities.

- As mine workers usually live close to the coal mines, the closure of these mines has a concentrated effect on the population in direct proximity. For example, in Germany, the mine workers are very much concentrated in the towns surrounding the coal mines, so that in case of immediate mine closure some of these smaller towns would experience very steep increases in the number of unemployed – up to 50% in certain cases²⁶. In Romania, the mines and their personnel are concentrated in the Jiu Valley; in 2004, half of the workforce in the valley was employed by the coal mines; 75 to 80% of total employee wages were dependent upon the evolution of the coal extraction sector²⁷. Studies have estimated that between 1997 and 2005, 17% of the population of the Jiu Valley was directly affected by the restructuring of the coal sector, and this percentage would reach 25% after the year 2010 at present policies²⁸. The unemployment rate in the valley is higher than 22%, and it would roughly double in case of a sudden closure of the remaining coal mining activity.
- Previous experiences with coal mine closures have shown that they tend to have significant impacts on the regional demographics. High unemployment typically reinforces emigration trends, especially for young and well-qualified work forces. This leads to a "brain drain", where the most qualified workers leave the affected region, and to an absolute population decline²⁹. This reduces the supply of qualified workers to other industries and also leads to an overall ageing of the local population.

²⁶ In the towns Bergkamen, Alpen, Dinslaken, Moers, Neukirchen-Vluyn and Voerde the number of unemployed would increase between 25 and 38%; in Hünxe and Kamp-Lintfort this would be up to 50%; *Regionalökonomische Auswirkungen des Steinkohlenbergbaus in Nordrhein-Westfalen, Studie der Prognos AG im Auftrag der GVSt, September 2007.*

²⁷ *The Jiu Valley Region: Multi-dimensional Assessment*, World Bank Report, March 2004.

²⁸ Dorinta Nita, Imola Driga, *The integration of Jiu Valley's economy on regional and national level.*, Annals of the University of Petrosani, Economics, 8(2), 2008, 31-40.

²⁹ An extreme example is the case of Petrosani in the Jiu Valley (Romania) where the population declined from 100000 in 1997 to 46000 in 2002. But also in the Ruhrgebiet (Germany), the

- The ageing of the population and the higher unemployment lead to higher expenses for health and social services by local authorities while their revenues tend to diminish because of the drop in activity. Furthermore, a number of social functions previously sponsored by the coal mining companies (such as sport facilities, nurseries, training centres, etc.) will have to be financed by the State if they are not to close.
- The reconversion of previous coal mining regions has proved very difficult in past experiences. Sudden closure of coal mines with massive lay-offs overburden the regional labour market to a point where many mine workers remain unemployed for long periods of time and therefore tend to become less "employable". The development of new activities proves to be difficult as potential investors are scared off by the drop of activity in the region triggered by the mine closures and by the often high wage expectations of former coal miners. It must be noted, however, that the difficulties of reconversion differ strongly between former coal mining regions, because of the specific characteristics of these regions (e.g. share of the coal mine activity in total activity, unemployment rate at the beginning of restructuring, regional policies, etc.).
- On a more broad perspective, the decline of coal mining activity is often accompanied by social aspects which are very difficult to quantify. The loss of the coal mining job is often a very traumatic experience for the work force concerned, more so than in other sectors, because coal miners experience their job as particularly difficult jobs which are performed in order to sustain the entire economic activity. Coal miners therefore consider that they deserve special consideration and the loss of their job therefore gives a strong feeling of "society turning its back" on them. The population of former coal miners is more prone to psychological problems (depression) and linked societal problems.

Experience in industrial restructuring throughout Europe has shown that Member States can of course implement various social and employment programmes in favour of workers losing their jobs during the restructuring process and which do not necessarily imply State aid: this ranges from direct support to more active labour market programmes involving employment services, training, wage subsidies, public works programmes, self-employment assistance programmes, etc.

With regard to State aid for inherited liabilities, in so far as they result from statutory provisions, the State would need to honor most of these payments even if the mining companies were to go bankrupt; in so far as the inherited liabilities from measures smoothening the reduction of the work force are concerned, Member States could implement these measures also in the form of direct payments to former coal miners, in which case these measures might not even constitute State aid.

However, the experience has shown that such social and labour market policies have had very diverse levels of success and that they are particularly difficult to implement successfully when the labour market is flooded with a great number of lay-offs at the same time. Regional reconversion is a long-haul process that takes rather decades than

population tends to decline while it increases in the rest of the Land Nordrhein-Westfalen (-1.2% between 1990 and 2002 compared to +4.2% for the entire Land).

years³⁰. Even if economic reconversion is successful, be it by integration of the workforce into other sectors or even by the development of new sectors (like the renewables sector), such developments take time and a great share of the unemployed from a massive lay-off are at high risk of becoming long-term unemployed before the economic reconversion starts to make a real impact.

3.1.5. *Is there a risk for the security of energy supply?*

During the public consultation, most stakeholders have argued that subsidized coal is essential for ensuring the security of supply. The indigenous coal production could constitute a protection against disruptions in the supply of imported coal or disruption in the supply of gas as having coal mines in Europe increases the geographic diversity of the origins of fossil fuels and reduces the import dependency. However, the small contribution of subsidised hard coal to the overall energy mix strongly limits the capacity of such subsidies to compensate for such disruptions.

Most Member States use a diverse range of fuels in the process of electricity production. Hard coal represents 18% of the EU electricity production (2006 figures), of which 42% is produced in the EU. 68% of the EU hard coal production receives some form of State aid under the Coal Regulation. Hence, subsidised coal serves for only 5.1% of the electricity production in the EU. When taking account only of aid to cover production losses, this figure is reduced to 1.4%. This low percentage raises serious doubts on whether the security of supply still justifies a specific instrument such as the Coal Regulation, at least at a global EU level.

In addition, the likelihood of disruptions in the supply of imported hard coal seems to be rather limited as the world coal market has shown greater stability than the markets for other energy sources. Hard coal can be imported from a diversity of exporting countries. The world trade volume in hard coal has been increasing on average by 7% per year since the year 2000. Strong capacity expansion in several countries, such as Indonesia and Russia, indicates that global trade can be expected to continue growing rapidly in the future³¹. Very recent changes related to the quickly increasing demand from Asia and modifications of the geographical origin of EU coal imports seem not to affect this view³². Even if this were so, in view of the low proportion of electricity generated from subsidised coal, it is doubtful whether an additional State aid instrument would be useful to address security of supply concerns.

As for short-term bottlenecks, studies indicate that stock-piling imported coal is more efficient to assure security of supply than subsidizing a domestic hard coal production³³.

³⁰ See also Gert-Jan Hospers, *Restructuring Europe's Rustbelt, The Case of the German Ruhrgebiet*, Intereconomics, May/June 2004, p. 147.

³¹ See Christopher Kopal (2006), *Angebot und Nachfrage am Steinkohlenwelthandel*, Zeitschrift für Energiewirtschaft 30 (p. 67) and Manuel Frondel, Rainer Kambeck, Christoph M. Schmidt (2006), *Hard coal subsidies: a never-ending story?*, Discussion Paper No. 53, Rheinisch-Westfälisches Institut für Wirtschaftsforschung.

³² In 2007, the major exporting countries to the EU were Russia (25.2%), South Africa (21.1%), Australia (13.4%), Colombia (13.4%), the USA (9.3%), Indonesia (7.7%) and Canada (3.1%).

³³ International Energy Agency (2002), *Energy Policies of IEA Countries – Germany 2002 Review* and Manuel Frondel, Rainer Kambeck, Christoph M. Schmidt (2006), *Hard coal subsidies: a*

During the public consultation, some social partners of the coal sector referred to the possibility that coal prices might increase following the closure of uncompetitive coal mines in the EU, hurting the EU competitiveness. However, this seems very unlikely as the total production shortfall expected in the EU in the absence of subsidies only corresponds to 4% of the world trade volume in hard coal; which is less than the annual growth of world trade (7%).

It should be noted that the before-mentioned percentages are higher in the coal-subsidising Member States: e.g. subsidised coal accounts for 9% of the electricity generation in Germany and 14% in Spain³⁴.

3.1.6. Impact on coal-fired power stations

Industry associations indicate that in many cases, coal-powered power stations cannot easily switch from indigenous coal to imported coal without substantial modifications of the power station and of the adjacent infrastructure. This concerns mainly the coal mills, as imported coal is usually not supplied in a properly treated state while indigenous coal is often already prepared in the coal mining company. Especially for older power stations, which have been designed specifically for the coal of a local coal mine, the conversion to imported coal may be too expensive or technically impossible. This not only refers to the burners of the power station, but also to the infrastructure needed to transport the imported coal to the power station (e.g. missing rail or waterway link, insufficient loading capacity in ports). In such cases, the closure of the mine may jeopardize the supply of electricity by this power station. However, it is doubtful that this problem would be of such a magnitude as to cause security of supply problems either at EU or national level³⁵.

3.1.7. Environmental impact of immediate mine closures at the end of 2010

As section 6.5 will show more in detail, a closure of coal mines stops the negative impact on the immediate environment of the mines, i.e. the visual and biodiversity impact on the landscape, the impact on ground water and soil subsidence in underground mining areas and the impact through mining waste.

With regard to the impact on greenhouse gas emissions, the impact of mine closures is uncertain. Although coal mining releases methane, a powerful greenhouse gas, methane capture technologies are highly developed in some coal-mining Member States. Furthermore, as greenhouse gas emissions are a global as opposed to local problem, the uncertainty increases when the emissions from the burning of the coal during the energy generation are taken into account.

never-ending story?, Discussion Paper No. 53, Rheinisch-Westfälisches Institut für Wirtschaftsforschung.

³⁴ Coal accounts for 43% of the electricity generation in Poland and 22% in Slovakia, but these countries do not provide operating aid per se. Polish mining companies are currently able to produce competitive coal, apparently because their additional costs for closed mines are covered by State aid for inherited liabilities. Aid in Slovakia is very small.

³⁵ This is also shown by the low interest of the electricity sector in the public consultation conducted by the Commission. Only two companies of the electricity sector responded (one that indicated no problems to use other coal sources, and one that indicated that adaptation of its power station would be necessary for the use of imported coal).

Studies, such as the one by *Europe Economics*, have shown that the overall use of coal as an energy source should not be significantly affected by the geographical origin of the coal. The reduction of the production of indigenous coal will most likely be replaced by imported coal. This is not surprising as a safeguard clause of the Coal Regulation prevents State aid from lowering the price of indigenous coal under the price of imported coal. It follows that the overall impact on greenhouse gas emissions depends on the emissions from coal mining in third countries and from the transport of the coal to the EU. The impact on the overall energy mix of the EU is negligible, at least in the short to medium term.

The closing of a mine necessitates a series of measures to rehabilitate the mining site, such as removing the mining equipment from the mine, cleaning-up the site, underground safety work, removal of waste water, etc. If the mining company ceases all economic activities, the financing of these environmental measures by the State may not constitute State aid (see section 3.1.2 above). But in case the undertaking continues mining or non-mining economic activities, State financing could constitute State aid and the other activities of the undertaking may be at risk if the undertaking had to bear these costs on its own.

Finally, in case of an immediate closure of mines at the end of 2010, there is a risk that necessary preparatory work for the close-down may not have been undertaken in time, thereby increasing the cost of rehabilitation measures following the closure. This mainly relates to the necessity of a specific spatial distribution of the underground coal extraction to avoid ground level damages (in extreme cases this can lead to earthquakes). And, in an immediate closure, it may be more difficult to retain the know-how needed for the rehabilitation and cleaning-up of the mining site, as the qualified workforce would have left. This risk could be avoided by a gradual closure implying a partial and temporary continuation of its activity.

3.2. What are the underlying drivers of the problem?

As mentioned earlier, some Member States have requested authorisation to continue subsidising their hard coal producers. General State aid rules will not allow them to do so to the same degree as under the Coal Regulation.

While the expiry of the Coal Regulation will address the lack of competitiveness of the coal industry by leading to the closure of the uncompetitive mines, it also may have *adverse consequences* on employment, on the economic situation of certain regions, and on the environment.

3.3. Who is affected, in what ways, and to what extent?

The expiry of the Coal Regulation would affect primarily those undertakings active in coal mining³⁶ - which have received State aid - and their employees.

But it also affects citizens who are concerned by coal mining activities, for example because of mining damages to their houses. Furthermore, it may create spill-over effects

³⁶ It also affects coal mines which currently do not receive any State aid as the absence of State aid to their competitors may create new business opportunities.

into neighbouring markets, such as the market for mining technology and clean coal technology and the markets for electricity and steel.

3.4. Should the EU act?

The Treaty entrusts the Union with State aid control. Only the Union can thus decide whether specific rules for the coal mining industry should be in force after 2010.

4. OBJECTIVES

The EU's general policy objectives for State aid to coal

The broader, horizontal objectives of the Commission with regard to State aid and to coal can be derived from the Strategic Energy Review - as endorsed by the European Council and the Council of Ministers -, the State Aid Action Plan and the Environment Action Programme:

- In its second **Strategic Energy Review**³⁷, adopted in November 2008, the Commission underlines the importance of indigenous energy sources for the security of energy supply. It cites "*making the best use of the EU's indigenous energy resources*" as one of the five priorities of its action plan. In this context, the Commission explains that coal "*remains an essential component of Europe's domestic energy supply and an important alternative to oil and gas*". The Strategic Energy Review mainly promotes the development of renewable indigenous energy sources and considers that the use of coal in the longer run is only compatible with the climate challenge if highly-efficient plants predominate and carbon capture and storage (CCS) is widely available.
- The **Council (TTE)**³⁸ in its conclusions of 19 February 2009 and the **European Council** of 19/20 March 2009 endorse the Strategic Energy Review and recall "*the need to make best use of [the Community's] own energy resources, including renewables, fossil fuels and, in countries which choose to do so, nuclear energy*" (emphasis added). The Council further stated that it is necessary to ensure the environmentally compatible development of the EU's indigenous fossil fuel resources.
- The general policy objectives for State aid have been defined by the Commission in its "**State aid action plan**"³⁹. The Commission considers that the main objective of State aid control is to ensure a level playing field, which is a prerequisite for the efficient functioning of a market-based economy.⁴⁰ It then recognises that under certain circumstances, State aid might be justified if the distortion of competition created by the aid is counterbalanced by their contribution to the furtherance of

³⁷ Communication from the Commission to the European Parliament, the Council, the European Social and Economic Committee and the Committee of the Regions, Second Strategic Energy Review, An EU Energy Security and Solidarity Action Plan - COM(2008) 781, 13.11.2008.

³⁸ Transport, Telecommunications and Energy

³⁹ COM(2005) 107 http://ec.europa.eu/comm/competition/state_aid/others/action_plan/saap_en.pdf

⁴⁰ *Ibidem*, points 6 and 7.

objectives of the EU interest. The State aid action plan favours a move towards horizontal State aid rules and away from sector-specific rules where possible.

- In the sixth **Environment Action Programme 2002-2012**⁴¹, the Commission cites among the objectives "undertaking as soon as possible an inventory and review of subsidies that counteract an efficient and sustainable use of energy with a view to gradually phasing them out" and "encouraging renewable and lower carbon fossil fuels for power generation". This follows an objective to phase out subsidies to fossil fuel production and consumption by 2010 as set in the **Strategy for Sustainable Development**⁴².

In summary, the Commission wishes to apply horizontal State aid rules in as many sectors as possible and with regard to energy policy favours a move towards renewable energy sources and an environmentally sustainable use of indigenous energy sources. But it also recognizes the importance of making the best use of domestic energy resources, including fossil fuels.

Policy objectives for State aid to the hard coal industry

It follows that indefinite State support for coal mining is not in line with the Commission's broad policy objectives, especially when it counteracts efforts to raise competitiveness or to move to renewable energy sources, even if its impact on competition is rather limited⁴³. But at the same time, the closure of uncompetitive mines may have consequences, especially on the social level, which need to be addressed.

The Commission defines the policy objective which the present assessment addresses as to **minimize the possible adverse effects of mine closures that may follow a phasing-out of subsidies, especially with regard to their social and environmental aspects, while minimising distortions of competition on the internal market.**

In particular, this implies the following specific objectives:

- reduce the social impact for the work force of the coal mines and indirectly affected jobs (e.g. retraining, outsourcing, early retirement, etc.). Given the regional concentration of coal mines, this objective strengthens the social and regional cohesion;
- ensure the cleaning and the rehabilitation of abandoned production sites;
- ensure that the distortions of competition arising from any State aid granted to the coal mining industry are minimised and in any event, counterbalanced by the positive social regional and/or environmental effects of the aid.

⁴¹ Decision No 1600/2002/EC of the European Parliament and of the Council laying down the Sixth Community Environment Action Programme (OJ L 242, 10.9.2002. p. 1) – see Article 5(2).

⁴² COM(2001) 264, 15.5.2001.

⁴³ It is one of the conditions of the current Coal Regulation that there is no impact of subsidised coal on electricity prices (see Article 4(c) and (e) of the Coal Regulation and Annex 3 therein).

5. POLICY OPTIONS

The following six policy options have been assessed⁴⁴:

(1) Option 1: the baseline scenario

Under the baseline scenario, the Commission will not propose a new sector-specific legal instrument applicable after the expiry of the Coal Regulation. General State aid rules will apply to the hard coal sector from 2011.

(2) Option 2: Commission Guidelines

Under option 2, the Commission would adopt guidelines based on Article 107(3)(c) TFEU. This Article does not constitute a legal basis for authorising operating aid over the long or medium term, even if such aid is degressive and intended for the closure of mines. Such guidelines should be strictly limited in time. They would be similar to those adopted in the shipbuilding and steel sectors and would be limited to closure aid in the form of aid to cover payments by coal mine undertakings to workers made redundant or accepting early retirement due to mine closures, the costs of counselling such workers and the costs of vocational retraining. It may also cover costs to finish ongoing contracts (for a maximum of 6 months) or the costs related to cancelling such contracts, whatever of both is lower. Moreover, it may cover expenditure incurred for the immediate cleaning and rehabilitation of the groundlevel production sites, but could not cover the sometimes significant amounts involved in the rehabilitation of the underground as their scope and duration (sometimes even eternal) would exceed what can be authorised under Article 107(3)(c) TFEU (see option 4). It is to be expected that the overall amount of aid would only be a small fraction of the aid amounts observed in the past (see Table 1 in Annex 2).

These Guidelines would expire at the end of 2013 as the aid measures should only concern coal mines closing in the context of the expiry of the Coal Regulation.

(3) Option 3: Council Regulation allowing time-limited operating aid (closure aid)

Under option 3, the Commission would propose a Council Regulation on the basis of Article 107(3)(e) TFEU. On the basis of this Article, the Council can legally adopt a Regulation authorising Member States to grant, over the long or medium term, operating aid necessary to accompany the closure of mines, taking account of the social consequences. The Regulation would allow clearly degressive operating aid aimed at covering current production losses as long as it accompanies an orderly winding-down of activities in the context of a well-defined mine closure plan (and concerning only mines already existing today). This would be a gradual phasing-out of operating aid over a maximum period of 10 years – in case of notification in 2011 - at the end of which the concerned mine(s) would be closed (closure aid). Aid must be clearly degressive at a rate of minimum 10% per year. In case the mine would not be closed at

⁴⁴ The "one time last time" principle which is applied in the Guidelines on rescue and restructuring aid (see footnote 15) is not applicable in this context as the aid either applies to mines to be closed anyway and/or is given in the form of production aid which does not relate to restructuring but to a continued support of uncompetitive activities.

the planned target date, the aid would have to be recovered. In any case, such closure plan would not allow the concerned mines to remain open beyond 2020.⁴⁵ As such long- or medium-term operating aid could only be justified to soften the social and environmental impact of the mine closures, it cannot be legally based on Article 107(3)(c) TFEU but can only be based on Article 107(3)(e) TFEU.

The proposed period of 10 years is based on the minimum time period requested by most stakeholders for a prolongation of specific State aid rules. It takes example on the coal mine closure plan notified by the German authorities which plans a gradual phase-out of operating aid over a period of 10 years. This time period is considered long enough to avoid that any coal miners would be directly fired. Instead the reduction of the work force would entirely be achieved by natural outflows, (early) retirement and outplacement measures.

The overall amount of such aid would be inferior to the amounts listed under the headings "current production aid" in Table 1 of Annex 2 and would quickly diminish because of the strict degressivity.

- (4) Option 4 : Council Regulation allowing aid to cover exceptional costs (inherited social and environmental liabilities)

Under option 4, the Commission would propose a Council Regulation on the basis of Article 107(3)(e) TFEU. This Regulation would allow aid for the social and environmental costs linked to the closure of coal mines, such as social welfare benefits and costs related to the rehabilitation of the former coal mining sites, as defined in the Annex of the current Coal Regulation. This possibility would apply to undertakings in restructuring, it is not needed if the mining undertaking ceases all economic activities (see section 3.1.2 above). The aid could then be provided as long as needed to cover the exceptional costs linked to the closing of the mine (which can be very long as for pension rights or removal of waste water).

Exceptional costs linked to the restructuring/closing of mines can be subdivided into two sub-categories:

- (1) **Social costs** such as the cost of paying social welfare benefits resulting from the pensioning-off of workers before they reach statutory retirement age, the payments of pensions and allowances outside the statutory system for workers who lose their jobs as a result of restructuring/closing of mines, the retraining of workers, residual costs to cover former miners health insurance, etc.
- (2) **Environmental costs** such as the rehabilitation of former mining sites (e.g. removal of waste water), additional underground safety work resulting from the closure of mines, etc. The rehabilitation of former mining sites often necessitates significant expenditure over a very long

⁴⁵ The 10-year period could only be fully used for closure plans notified in 2010. If, for example, the plan were notified in 2016, the concerned mines would still need to be closed by 2021, reducing the maximum duration of the plan to 5 years (and increasing the pace of degressivity).

period of time (e.g. pumping of water may sometimes be an eternal necessity).

The high amounts and the very long duration of aid plead for a legal instrument based on Article 107(3)(e) TFEU (the expected amounts of aid would be similar to those listed under the headings "aid related to exceptional costs" in Table 1 of Annex 2).

Option 5: the combination of options 3 and 4

Under option 5, the Commission would propose a Council Regulation on the basis of Article 107(3)(e) TFEU that allows both, closure aid (as in option 3) and aid to cover exceptional costs (as in option 4).

It is to be expected that the overall amount of such aid would be inferior to the amounts listed in Table 1 of Annex 2 and would quickly diminish because of the strict degressivity of production aid.

(5) Option 6: temporary prolongation of the current Coal Regulation

In line with the favoured option of most stakeholders from the coal sector, under option 6, the Commission would propose to the Council to prolong Council Regulation 1407/2002 - as it stands today - by a further 10 years, i.e. till the end of 2020. This would differ from option 5 by the following characteristics:

- Production aid could be authorized on the basis of Article 5(3) if the operation of the concerned production units forms part of a plan for accessing coal reserves; hence, there would be no conditionality with regard to the closure of these mines;
- Production aid would need to be degressive so as to result in a significant reduction, but no particular rate of reduction would be imposed;
- Initial investment aid up to 30% of the total investment cost could be granted.

The possibility of closure aid (Article 4) already expired in 2007 according to the current Regulation. A prolongation of this possibility is not needed as production aid can already be granted under Article 5(3) (as was already noted in the Commission report under Article 11 of the Coal Regulation⁴⁶).

The expected amounts of aid under option 6 would be inferior to the amounts listed in the last column of table 1 of Annex 2 because of the degressivity of production aid, but there would be no fixed time scale for the end of subsidies.

⁴⁶ Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – Commission Report on the Application of Council Regulation (EC) No 1407/2002 on State Aid to the Coal Industry – COM(2007) 253, 21.5.2007
(<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0253:FIN:EN:PDF>)

The Regulations proposed in options 3 to 6 are to be seen as transitory legal instruments, marking the transition from the coal-specific rules of the current Coal Regulation to the definite application of the general State aid rules at their expiry.

6. ANALYSIS OF IMPACTS

The analysis of the impacts has been divided into:

- Economic impacts;
- Social impacts, especially with regard to regional employment;
- Environmental impacts (pollution, global warming, etc).

6.1. The current market situation

6.1.1. Hard coal production in the EU

The current market situation of EU hard coal is shown in more detail in Annex 2. The EU presently accounts for approximately 125 million tonnes of coal equivalent (Mtce)⁴⁷ of hard coal production. Poland accounts for more than half of the EU production, while the other half is mainly produced by Germany, the United Kingdom, the Czech Republic and Spain.

In 2007, about 220 000 persons were employed in EU hard coal production, of which more than half in Poland. Similarly as for production, the employment level is on a declining trend.

6.1.2. State aid to the hard coal industry

Between 2003 and 2008, over €6 billion of State aid to the hard coal sector has been approved on the basis of the Coal Regulation (most, if not almost all, of which could not have been approved on the basis of general State aid rules). In addition, a number of forward plans for aid in the years to 2010 have already been made. However, the total amount of subsidies to EU hard coal follows a downward trend: the yearly amounts have more than halved between 2003 and 2008 (see Annex 2).

6.2. Affected markets and impact on competition in the internal market

The Coal Regulation allows an exception to the general prohibition of State aid measures laid down by Articles 107 and 108 TFEU. The rationale for this prohibition is that State aid produces distortions of competition on the internal market and tends to harm efficient firms and sectors, to the detriment of EU consumers. Amongst the various types of State aid, operating aid tends to have a particularly strong impact on competition and is only allowed in exceptional circumstances. Overall, State aid is normally only allowed when it contributes to the furtherance of objectives of EU interest, to an extent that this contribution overrides its detrimental effects on

⁴⁷ Ton of coal equivalent (TCE): a conventional value of 7 Gcal (IT) = 29.3076 GJ.

competition. For that reason, appreciating the compatibility of State aid is fundamentally about balancing the negative effects of aid on competition with its positive effects in terms of EU interest.

State aid measures can sometimes be effective tools for achieving objectives of EU interest. They can correct market failures, thereby improving the functioning of markets and enhancing European competitiveness. They can also help promote e.g. **social and regional cohesion**, sustainable development and cultural diversity, irrespective of the correction of market failures. These principles have been confirmed in the Commission's State Aid Action Plan⁴⁸.

To fully appreciate the possible impact of State aid on competition, we also need to determine which markets are likely to be affected and to which extent. State aid to the coal industry potentially affects three different product markets: the market for coal, the market for steel, and the market for electricity. In addition, there might also be effects on closely related markets, such as the market for mining equipment, the market for environmental technologies related to mining, and other similar markets.

With regard to the coal market itself, it should be noted that most subsidised production is consumed in the national market and that the impact of aid for hard coal on competition in the internal market is limited. The table below shows that the coal-producing Member States export about 19 mio tonnes – or 12% of their hard coal production – to other Member States. A further 13 mio tonnes is exported by non-producing Member States – mainly Belgium and the Netherlands – as coal importers are situated in their maritime ports. Intra-EU imports of hard coal only represent about 11% of the imports from third countries and only 6.5% of the hard coal consumption in the EU.

Table 4: Import and export from hard-coal producing countries (thousands of tons, 2007)

	Hard coal production	Hard coal consumption	Intra-EU imports	Intra-EU exports	Extra-EU imports	Extra-EU exports
Bulgaria	35	4736	104	0	4738	1
Czech Republic	12894	9760	2418	6658	135	150
Germany	24185	70097	6684	294	39603	16
Spain	11002	36465	158	7	24281	865
Italy	158	25118	98	0	24855	0
Hungary	0	2565	1093	65	1559	0
Poland	87406	85336	2073	11497	3851	403
Romania	12	4507	7	3	4484	64
Slovenia	0	594	19	2	554	0
Slovakia	0	5021	2284	0	3002	0
UK	16540	62865	495	467	42870	54
Other Member	0	71272	9104	13244	73987	549

⁴⁸ §10 and 11, for reference see footnote 40.

States						
EU 27	152232	378336	24537 ⁴⁹	32237	223919	2102

Source: Eurostat⁵⁰

However, the fact that there are currently limited flows of coal between Member States does not mean that such flows could not somewhat increase in the future should certain EU mines be closed because of the cessation of operating aid. But such an increase of intra-EU trade would mainly concern coal imported from third countries as most coal-producing Member States consume more coal than they produce; only the Czech Republic and Poland export a part of their production, but it is uncertain whether they would be able to increase production for more exports.

Export possibilities are even more limited for low-grade coal (as in Slovakia, Spain and Hungary), as the transport costs for low-grade coal are relatively high, and most of the production is used in near-by power plants.

With regard to the markets for electricity and for steel, it must be reminded that the Coal Regulation foresees a safeguard clause in its Article 4 (e): "*aid must not lead to any distortion of competition on the electricity market, the market of combined heat and electricity production, the coke production market and the steel market*". It follows that it can be excluded that the Coal subsidies, as provided under the Coal Regulation, reduce the price of electricity or steel produced with this coal, as the coal subsidies cannot go beyond what is necessary to reduce the price of indigenous coal to the level of the world market.

6.3. Economic impacts of the policy options

The comparison of the different policy options is based on the assumption that the concerned Member States would indeed grant State aid as allowed by the rules applicable under each of the policy options. Should they choose not to do so, then the results of the alternative policy options would not differ from the baseline scenario.

6.3.1. Impact of the policy options on the public budget

Whether sector-specific State aid rules would have a different impact on public finances than the general State aid rules is above all a decision of the concerned Member State. Even in the presence of sector-specific rules, there is no obligation for the Member State to indeed grant State aid.

A reduction of subsidies to the hard coal sector would improve the financial situation of the public finances of the concerned Member States. Table 2 shows that in 2010, production aid in the 5 concerned Member States could amount to €1.67 billion and aid

⁴⁹ The difference between total intra-EU imports and intra-EU exports is mainly due to variations in stocks and statistical discrepancies.

⁵⁰ The definitions used in coal statistics are somewhat different from those in the Coal Regulation. The table gives the impression that there is no hard coal production in Hungary and Slovakia; this is because the low-grade coal types produced in these countries are not registered among the hard coal as defined in the statistics. The table should mainly be used to capture the scale of intra-EU trade compared to overall consumption.

for exceptional costs to €1.55 billion annually. Subsidies for exceptional costs would still be needed in the case of immediate closure of the mines; they would even increase in the short term as costs linked to the cleaning-up and rehabilitation of the mining sites would have to be borne for all the closed mines at the same time. Still, the phase-out of operating aid (and of investment aid) would free up fiscal resources.

A (simplistic) comparison of the data in table 2 shows that, when taking into account production aid and investment aid, Spain spends annually EUR 73 276 per coal job saved, Germany EUR 54 245, Hungary EUR 20 846 and Slovakia EUR 175. But at least part of this economy would be counter-balanced by additional costs in case of accelerated close-down of the mines, especially in terms of unemployment benefits, early retirement schemes and other social obligations towards former coal miners, and fiscal budgetary shortfalls. The data resulting from the simple calculation would be significantly reduced.

For example, a calculation made for Germany⁵¹, on the basis of an immediate closedown in 2006, shows that the loss in public revenue from taxes and social contributions from more than 55000 job losses (net, direct and indirect job losses) would amount to about EUR 1 billion, plus EUR 685 million of additional expenses for labour market measures (at current policies). The saved annual production aid (EUR 1.4 billion, see annex 2) would be entirely soaked up by this budget shortfall, at least in the short term.

It follows that, first, financial resources would only be freed up in the longer term, when job losses are gradually absorbed by the labour market and when exceptional costs linked to mine closures are reduced. Second, the amount of budgetary resources freed up by the stop of subsidies depends very much on the ability of local/regional labour markets to absorb the labour formerly employed in the mines. The above-mentioned study for Germany was based on an average re-employment rate of 3% of the work force, as observed following the mine closures in the UK (where finally only 60% of the coal miners found another job within 20 years, according to this study). The absorption of mine workers by the labour market very much depends on the specific labour market of the region concerned, such as job policies in place, the importance of the coal industry in the regional economy, the re-employability of the mine workers in other industries, the jobless rate before the mine closure, etc.

One should therefore not conclude too quickly that the saved subsidies could immediately be re-employed for other policies, such as regional economic reconversion or promotion of other energy sources. It may well turn out, that depending on the specific characteristics of the Member State and the region concerned, the budgetary impact of an immediate mine closure or of a gradual mine closure plan would be very similar, if the latter would indeed facilitate the absorption of the work force into alternative jobs. The figures provided by the aforementioned Prognos study do indeed point in that direction⁵².

⁵¹ "Regionalökonomische Auswirkungen des Steinkohlenbergbaus in Nordrhein-Westfalen, Prognos 2007, Studie im Auftrag des Gesamtverband Steinkohle.

⁵² A calculation based on the Prognos figures shows that an immediate closure of the German mines would cost between EUR 18 and 21 billion in fiscal losses until 2018 (if the job market only absorbs 3% of mine workers per year); a gradual closure until 2018 would cost around EUR

6.3.2. *Option 1: the baseline scenario - general State aid rules*

The Coal Regulation expires on 31 December 2010. As shown in paragraph 3.1 above, in the absence of a new legal framework allowing for certain specific types of State aid to the coal industry, Member States could grant aid only within the limits foreseen by general State aid rules applicable to all sectors. Section 3.1 already described the consequences. The alternative options are assessed in comparison with this baseline scenario.

6.3.3. *Option 2: Guidelines*

The economic impact of option 1 is not fundamentally different from option 2. Option 2 will lead to the same production shortfall and the same number of jobs lost. The difference lies in the possibility given by option 2 to organise a mine closure in an orderly way and even to delay it for a few months in order to finish ongoing contracts. It should nevertheless be stressed that the closure aid as currently foreseen by the shipbuilding and steel frameworks falls far below the current needs of the coal sector as expressed by the stakeholders and certain Member States.

Support for certain costs such as retraining of the work force or the rehabilitation of the mining site, which could be State aid when the mine is still economically active, may be allowed during the closure phase.

6.3.4. *Option 3: production aid*

By covering operating losses, production aid has the ability to keep uncompetitive mines open. However, it weighs heavily on public finances and is operating aid.

In such a closure plan, the concerned mines could be kept open for a longer period (up to 10 years in the extreme case), but production and employment would significantly be reduced from year to year as subsidies would be strictly degressive. Related industries, such as mining equipment producers, coal-fired power stations or steel mills, would have additional time to adjust their production process to imported coal or other energy sources. Strongly affected regions would be given more time to implement redeployment policies that reduce the impact of the mine closure on the regional economy.

6.3.5. *Option 4: aid to cover exceptional cost (inherited liabilities)*

We already noted before that with regard to State aid for exceptional costs, these payments might not constitute State aid if the concerned companies have ceased all economic activities (without prejudice to possible State aid indirectly provided to non-coal companies because they hire specifically retrained ex coal miners).

Option 4 is rather relevant for mining companies that only close down part of their mines or that have other economic activities. As seen before, the general State aid rules

24.5 billion (of which EUR 16 billion in production subsidies) at the same job creation rate, but it could be reduced to EUR 22 billion or less if the absorption rate can be accelerated (up to 9%) thanks to the gradual release of the work force to the labour market. The difference in budgetary cost would be reduced to EUR 2 billion over the 10-year period.

give only few possibilities for training aid or environmental aid. Mining undertakings programmed to close down part of their mines may simply not have the financial means to fulfil their obligations with regard to inherited liabilities until the final close-down of their mines.

The economic impact may differ from option 1 if the aid for the exceptional cost does not force the mining company to divert resources from other, potentially competitive mining sites to the mines to be closed. Indeed, if the closure of some mines of the company would generate exceptional costs which the company cannot bear, this will impact on the chances of survival of the other mines of the company as well.

As shown before (see section 6.2), the impact of the aid on competition in the internal market remains limited. In addition, possible distortions of competition may be further limited by clearly distinct accounts for the subsidised mines (to avoid cross-subsidisation).

A quantitative estimate cannot be provided as the Commission does not have precise information on the needs for support of exceptional costs after 2010. Indeed, the aid schemes that have been approved by the Commission did not detail such a need after 2010, taking account of the expiry of the Coal Regulation in 2010⁵³.

6.3.6. Option 5: combination of options 3 and 4

In the context of a gradual closure of coal mines belonging to a same company, as would be possible when operating aid were allowed as under option 3, aid to cover the exceptional costs linked to these closures may be necessary as such support could be considered as State aid where mines have been closed but belong to undertakings with other coal mines. In the case of a gradual close-down of coal mines, aid for inherited liabilities is likely to be needed at the same time as other types of aid, mainly operating aid.

The economic impact in terms of production and jobs would be very similar to option 3, but under this option 5, it would be possible to avoid that the exceptional costs linked to the mine closures would impact on the viability of other mines of the same company.

6.3.7. Option 6: prolongation of the current Coal Regulation

Under the simple prolongation of the Regulation the type of aid currently granted could be extended. Although the Regulation imposes the degressivity of the aid, past experience has shown that such degressivity can be very weak in practice, thereby prolonging State aid for an indefinite time.

Indeed, while the presently pursued policy objective is a social objective, the Coal Regulation responds to a double policy objective: mitigating the social impact of mine closures, but also securing the access to coal reserves in order to enhance the security of energy supplies. Today, this second objective is not considered as relevant anymore (see

⁵³ Recent Commission decisions on State aid indicated a need for State aid for the period beyond 2010, as for Spain and Poland, but without further precision as long as the EU legal regime applicable after 2010 is not known.

section 3.1). Therefore, the production aid granted in view of securing access to reserves (Article 5(2) of the Coal Regulation) does not respond to the present policy objective: rather than facilitating the closure of mines, it helps to keep uncompetitive mines open. Experience has shown that the expiry date of the Regulation and the not further defined degressivity of the aid do not exert sufficient pressure on Member States to restructure their hard coal industry in order to make it competitive.

Indeed, past experience with the Coal Regulation is mixed (see the 2007 report⁵⁴). During the period of application of the Coal Regulation, two Member States completed the restructuring process: France by closing all its coal mines and the Czech Republic by privatizing the coal mines and stopping subsidies. The UK, Poland and Slovakia have not given operating aid (only investment aid). But Bulgaria, Germany, Hungary, Romania and Spain have maintained schemes of operating aid. The success of the restructuring process in these countries seems to be limited, as the production costs have only slightly been reduced, or have even increased. In these countries, it seems that the limits of possible efficiency gains have been reached. The *Ecorys* study has shown that the chances of survival without subsidies of the coal industry in most of these countries are weak. Political and social resistance could lead to an indefinite continuation of operating aid in case of a prolongation of the Coal Regulation.

Although the option of prolongation could allow Member States to meet the policy objective by implementing mine closure plans, at the same time, it could also allow them to deviate from the policy objective by simply continuing to provide production aid to uncompetitive mines without a clear commitment for closure or restructuring. It follows that the same mines could still be uncompetitive at the new expiry date of the Regulation in 10 years. The underlying problem of non-competitiveness would not be solved, but just delayed.

A prolongation of the Coal Regulation would send the (wrong) signal that coal subsidies may continue for an indefinite time. This, however, would be contrary to the Commission's objectives with regard to climate change and (the move away from) sector-specific State aid rules (see section 4).

With regard to investment aid, as could be authorized under this option, it cannot contribute to the policy objectives at hand, i.e. as an accompanying measure of mine closures. Indeed, investment aid rather promotes the development of new activities or the increase of efficiency, neither of which is relevant for accompanying the closure of a coal mine.

Moreover, actual investment aid is very limited under the current Coal Regulation (see Table 1 in Annex 2). Only Slovakia currently provides investment aid to coal mines and at present it cannot be excluded that it could continue doing so after 2010 if the substantive rules of the Regional Aid Guidelines were to be applied.

⁵⁴ See footnote 47.

6.3.8. *Overview of economic impacts*

Table 3: economic impact of the policy options (comparison to the baseline scenario)⁵⁵

		Internal market and competition
(1)	Baseline scenario	The reduction of State aid reduces aid-induced market distortions although these remain limited (see section 6.2)
(2)	Guidelines	= same as option 1
(3)	Production aid until closure	- Production aid has usually the most distortive impact as it has an immediate effect on the costs/prices. However, in the case of hard coal, the distortion is limited (see section 6.2) and the aid is applied for a limited period in view of the closure of mines. .
(4)	Aid for exceptional costs related to closure	- Limited distortion the market functioning; but the aid facilitates the closure of uncompetitive mines
(5)	Combination of (3) and (4)	- Production aid has usually the most distortive impact as it has an immediate effect on the costs/prices. However, in the case of hard coal, the distortion is limited (see section 6.2) and the aid is applied for a limited period in view of the closure of mines. .
(6)	10-year continuation of the current Coal Regulation	As the experience with the Coal Regulation has shown, in this option, there is not sufficient incentive to close or restructure the concerned mines.

Table 3: economic impact of the policy options (continuation)

		Competitiveness	Operating costs and conduct of business
(1)	Baseline scenario	The closure of the non-competitive mines raises the overall level of competitiveness in the hard coal sector.	The option leads to the likely close-down of coal-mining undertakings in a number of Member States. It is not expected that the option will have a significant impact on the availability of coal on the market (energy security).
(2)	Guidelines	= same as option 1	= same as option 1
(3)	Production aid until closure	- Production aid keeps in life uncompetitive mines without any incentive for improvement. However, closure aid may facilitate the closure of uncompetitive mines in an uneasy	+/- The option may temporarily save coal-mining undertakings from close-down.

⁵⁵ The signs "+" and "-" in the table are to be seen as a comparison with the baseline scenario.

		social and political context.	
(4)	Aid for exceptional costs related to closure	-/= Aid for non-competitive producers does not raise competitiveness, but it may facilitate the closure of uncompetitive mines in an uneasy social and political context.	= The option will not save uncompetitive coal mines; it only covers exceptional costs linked to the inevitable close-down.
(5)	Combination of (3) and (4)	- Production aid keeps in life uncompetitive mines without any incentive for improvement. However, closure aid may facilitate the closure of uncompetitive mines in an uneasy social and political context.	+/= The option may temporarily save coal-mining undertakings from close-down.
(6)	10-year continuation of the current Coal Regulation	-- Production aid keeps in life uncompetitive mines without sufficient incentive for improvement.	+ the options may save uncompetitive coal mines from closing

Table 3: economic impact of the policy options (continuation)

		Innovation and research	Consumers and households
(1)	Baseline scenario	The possible close-down of mines may reduce the stimulation for research and development in the related equipment industry.	It is not expected that the option would have a significant impact on energy prices paid by households. Indirectly, the relief on the public budget may have positive impact in terms of lower taxes/higher expenses elsewhere, at least in the medium to long term.
(2)	Guidelines	= same as option 1	-/= It is not expected that the option would have a significant impact on energy prices paid by households. Indirectly, higher subsidies via their impact on the public budget, may weigh on consumers via higher taxes or lower expenses in other sectors.
(3)	Production aid until closure	= temporary aid will not have a lasting impact on related research and development activities	-/= It is not expected that the option would have a significant impact on energy prices paid by households. Indirectly, higher subsidies via their impact on the public budget, may weigh on consumers via higher taxes or lower expenses in other sectors
(4)	Aid for exceptional costs related to closure	= aid in the context of mine closures will not have a lasting effect on research and development activities	-/= It is not expected that the option would have a significant impact on energy prices paid by households. Indirectly, higher subsidies via their impact on the

			public budget, may weigh on consumers via higher taxes or lower expenses in other sectors
(5)	Combination of (3) and (4)	= temporary aid will not have a lasting impact on related research and development activities	-/= It is not expected that the option would have a significant impact on energy prices paid by households. Indirectly, higher subsidies via their impact on the public budget, may weigh on consumers via higher taxes or lower expenses in other sectors
(6)	10-year continuation of the current Coal Regulation	=/+ on the one hand, the mines will continue their activity and may stimulate further research and development in related research and development activities; on the other hand, the incentive for productivity gains is reduced when the mine can continuously rely on production aid.	- It is not expected that the option would have a significant impact on energy prices paid by households. Indirectly, higher subsidies via their impact on the public budget, may weigh on consumers via higher taxes or lower expenses in other sectors. In this option, there is insufficient incentive for a significant reduction of these subsidies over time.

Table 3: economic impact of the policy options (continuation)

		Specific regions or sectors	Third countries and international relations
(1)	Baseline scenario	Some Member States and some regions are affected more than others. Coal mine closures will have a concentrated impact on the economic activity in these regions.	The closing of mines will lead to a (at least partial) substitution of indigenous coal by imported coal.
(2)	Guidelines	=/+ Same as option 1, but the aid alleviates to a very limited degree the negative economic impact.	= same as option 1
(3)	Production aid until closure	+ Aid alleviates the negative economic impact on specific regions.	+ Aid will slow the substitution of indigenous coal by imported coal. - This could be seen as a protectionist measure and might send the wrong signal to international partners that the EU is not doing its utmost to achieve a low carbon economy
(4)	Aid for exceptional costs related to closure	+ Aid alleviates the negative economic impact on specific regions.	Same as option 3
(5)	Combination of (3) and (4)	+ Aid alleviates the negative economic impact on specific	Same as option 3

		regions.	
(6)	10-year continuation of the current Coal Regulation	+ Aid alleviates the negative economic impact on specific regions	Same as option 3 (for option 6, the negative aspect is stronger given the insufficient incentive to phase out aid)

Table 3: economic impact of the policy options (continuation)

		Macroeconomic environment	Security of supply
(1)	Baseline scenario	The baseline scenario may induce mine closures at a time when regional and national unemployment is already high following the financial crisis. On the other hand, the reduction in subsidies frees financial resources for other support to the economy (although in the short term, these resources may be reduced because of the exceptional costs linked to mine closures and the fiscal shortfall).	The baseline scenario may lead to the loss of 20% if the EU hard coal production, standing for only 1% of the gross inland energy consumption of the EU. International coal suppliers are diversified, not indicating particular problems for the EU security of supply. However, coal-fired power plants may have to switch quickly to imported coal which is not always possible without extensive investments.
(2)	Guidelines	= very similar to option 1, but the subsidies drain resources from other uses of the public funds in favour of the economy (the aid remains very limited though).	= similar to option 1 (but it gives slightly more time for coal-fired power plants to adapt)
(3)	Production aid until closure	= If mines can temporarily be saved from closure, the option will alleviate the aftermath of the financial crisis. However, the subsidies drain resources from other uses of the public funds in favour of the economy.	=/+ By slowing down the closure process, this option may give coal-fired power plants more time to adapt. Marginal effect on EU security of supply.
(4)	Aid for exceptional costs related to closure	= same as option 3	=/+ By slowing down the closure process, this option may give coal-fired power plants more time to adapt. Marginal effect on EU security of supply.
(5)	Combination of (3) and (4)	= same as option 3	=/+ By slowing down the closure process, this option may give coal-fired power plants more time to adapt. Marginal effect on EU security of supply.
(6)	10-year continuation of the current Coal Regulation	=/- same as option 3, but the public resources used are more important and there is insufficient incentive to phase out the aid.	=/+ Coal-fired power plants may still have access to local coal. Marginal effect on EU security of supply.

When comparing the pros and cons of the various policy options in the above table, it can be seen that the alternatives to the baseline scenario have an overall negative

economic impact, mainly because of the impact on competition in the internal market and on the competitiveness. This is particularly the case when production aid is involved, and even more so when there is no guarantee that the aid will be phased out (as in option 6). However, as shown in section 6.2, the impact of the State to aid to hard coal on the internal market is limited because of the feeble scale of intra-EU trade in hard coal, thereby limiting the negative economic impact.

Moreover, the policy objective (defined in section 4) is minimizing the adverse effects of the mine closures while also minimizing the distortions of competition. Therefore, options 2 to 5 cannot simply be dismissed given their impact on specific regions which, mainly with closure aid, are given more time to adapt in a difficult socio-economic context. **Option 2** then seems to be the preferable option to the baseline scenario in terms of mitigating the direct economic impact on the most concerned regions and industries.

6.3.9. Uncertainties with respect to the economic impact

Many uncertainties surround these scenarios. First of all, the evolution of future coal prices remains uncertain. Secondly, it cannot be excluded that some mines may be able to restructure successfully in order to survive without aid or only with aids as allowed under general State aid rules. Inversely, it is not impossible that some mines identified as competitive in the *Ecorys* study may become uncompetitive, for example because of an unforeseen event or because production costs increase faster than expected in the *Ecorys* study.

6.4. Social and regional impacts of the policy options

6.4.1. Option 1: Baseline scenario

Section 3.1 already described the consequences of this "do nothing" scenario. The alternative options are assessed in comparison with this baseline scenario.

6.4.2. Option 2: Guidelines

Option 2 will not reduce the number of job losses. But it can help to better organise the close down of the mines with more direct support to the workers concerned, in the form of retraining, counselling, etc. that goes beyond what is foreseen by statutory rights. The closure itself could be delayed by maximum 6 months.

Past experience with mine restructuring has shown that early intervention is a key to success: offering employment and retraining services before workers are laid off increases the participation rates in these programmes and facilitates a rapid transition to other jobs⁵⁶. In this sense, option 2 may help to reduce the social impact by starting counselling and retraining programmes before the mine's closure.

⁵⁶ See for example Hungary's experience with pre-layoff assistance – *Labor transition in the coal sector (Southeast Europe)*, US Agency for International Development (USAID), March 2007.

6.4.3. Option 3: Production aid

(Temporary) production aid could keep an uncompetitive mine in activity, thereby saving jobs. The aim of the temporary measure is not to save permanent jobs, but to allow a gradual reduction of the work force, giving the time to take account of the workforce's age structure (early retirement and retirement), of "natural outflows" (not replacing leaving workers) and of its qualification (retraining workers to allow employment in other activities). It allows reducing the production of an uncompetitive mine by minimizing the number of direct lay-offs and by maximizing accompanying measures allowing the work force's redeployment into other activities.

This logic applies in the notified German closure plan, which phases in the closure of the remaining hard coal mines in order to avoid direct lay-offs by (early) retirement and redeployment via retraining.

Experience with economic and regional reconversion has shown that the labour market can more easily absorb the laid-off work force if the lay-offs are spread over time. It allows implementing more easily counselling and retraining programmes and avoids that a great share of the former coal miners slip into long-term unemployment⁵⁷. The International Labour Office also pleads for gradual closure: "*When considering the removal of production subsidies and consequent mine closures, the pace of closure needs to be examined. Sudden closure in an area that is heavily dependent on a mine will have a major and, quite possibly, lasting adverse economic impact on the local economy, even in a generally robust national economy, whereas phasing out smoothly will tend to have less of an impact.*"⁵⁸

Such gradualism needs to be carefully planned and implemented to ensure that the necessary qualifications needed for a safe and efficient production remain within the mining undertaking until its closure.

6.4.4. Option 4: Aid to cover exceptional cost

Section 6.3 has shown that such aid is mainly necessary in the context of a gradual closedown of the production sites of a mining company. It then allows to provide additional support to mining employees via retraining and counseling (in view of redeployment) and for early retirement.

It may also save jobs when the exceptional costs linked to the closedown of a mine do not affect the viability of other mines of the same company.

The impact in terms of jobs of option 4 is not significantly different from option 2.

⁵⁷ For example, in Germany hard coal employment has been reduced by more than 50000 jobs between 1997 and 2007 without firing any workers: 21000 retired, 7000 left the industry by own initiative and all others found a new job in other industries via outplacement policies or transfers to non-coal subsidiaries.

⁵⁸ International Labour Office, *The evolution of employment, working time and training in the mining industry*, Report for discussion at the Tripartite Meeting on the Evolution of Employment, Working Time and Training in the Mining Industry, Geneva, October 2002.

6.4.5. Option 5: combination of options 3 and 4

From the social point of view, option 5 combines the positive impact of options 3 and 4 by reducing the direct lay-offs and, simultaneously, maximizing the possibilities of support for the laid-off workers.

6.4.6. Option 6: temporary prolongation of the current Coal Regulation

Under option 6, Member States could be authorized to carry out the same type of closure plans as under option 5. But option 6 also allows the authorization of State aid without a clear commitment for closure which would miss the policy objective. There is insufficient incentive to effectively restructure or close the non-competitive mines and to initiate social and retraining programmes to help the work force. After 10 years, when the temporary prolongation expires, the same problems as faced today may still exist and then, without any sector-specific State aid rules, a similar scenario as under option 1 would apply again.

6.4.7. Overview of social impacts

Table 5: social impact of the policy options (comparison to the baseline scenario)⁵⁹

		Employment and labour markets	Retraining
(1)	Baseline scenario	Direct loss of between 27000 and 42000 jobs, concentrated in a few Member States and a few regions. More jobs affected in related industries (e.g. sub-contractors in Spain, equipment producers in Germany). These figures do not take account of multiplier effects on other sectors and regions. Up to 100000 jobs may be affected. Inversely, they do not take account of the (although limited) possibility of job creation in competitive coal mines that might supply coal to the Member States/regions where mines have been closed.	Immediate closure of mines does not leave time for retraining before applying for new jobs (it still does not exclude support to general retraining measures after job loss)
(2)	Guidelines	= same as option 1	=/+ slightly better possibilities for retraining than under option 1 (retraining support can start before job loss)
(3)	Production aid until closure	+ Jobs will be saved temporarily while the mine closure is phased in. This could allow a progressive reduction of the work force while minimizing firing ("natural" outflow, retirement and early	+ Gradual phase-out of production gives time to organize retraining/redeployment.

⁵⁹ The signs "+" and "-" in the table are to be seen as a comparison with the baseline scenario.

		retirement). Note that the public resources injected in the coal sector as production aid cannot be used anymore for other sectors, such as renewable energy, where more permanent jobs could be created (but these job creations will not necessarily alleviate the strong regional impact of the job losses in the coal sector and the relief of the public budget might be less than hoped for, see section 6.3.1).	
(4)	Aid for exceptional costs related to closure	=/+ May save jobs when mine would be competitive without bearing these exceptional costs.	+ Aid for retraining gives better chances for redeployment
(5)	Combination of (3) and (4)	+ Jobs will be saved temporarily while the mine closure is phased in. This could allow a progressive reduction of the work force while minimizing firing ("natural" outflow, retirement and early retirement). In addition, the option may save jobs when mine would be competitive without bearing these exceptional costs. Note that the public resources injected in the coal sector as production aid cannot be used anymore for other sectors, such as renewable energy, where more permanent jobs could be created (but these job creations will not necessarily alleviate the strong regional impact of the job losses in the coal sector and the relief of the public budget might be less than hoped for, see section 6.3.1).	+ Gradual phase-out of production gives time to organize retraining/redeployment.
(6)	10-year continuation of the current Coal Regulation	+ Coal jobs (and related jobs) could be saved by keeping uncompetitive mines open. However, there is no guarantee that such jobs could become viable in the longer term; after 10 years, the underlying problem of non-competitiveness may not be resolved.	=/+ retraining could be organised as in options 4 and 5, but there is insufficient incentive for retraining programmes as long as there is no clear perspective for restructuring or closure.

Table 5: social impact of the policy options (continuation)

		Public health and safety	Effects on social protection
(1)	Baseline scenario	Coal mining jobs involve higher risks for accidents and for the	The closure of mines should not affect miners' statutory rights with

		<p>workers' health in general than other jobs in the economy. Therefore, the closure of mines may have a positive impact on the health of the work force.</p> <p>However, if the work force stays unemployed, this may also have adverse health effects (e.g. psychological impact)</p>	<p>regard to social protection and health insurance. However, they may lose additional coverage provided by the undertaking.</p>
(2)	Guidelines	= same as option 1	+ The closure of mines should not affect miners' statutory rights with regard to social protection and health insurance. In addition, additional support may be given to the workers.
(3)	Production aid until closure	-/= if the option keeps mines (temporarily) alive, there may be a negative impact on the health of the concerned miners, depending on health and safety provisions in the concerned mines.	+ If the option keeps mines (temporarily) open, this may have a positive impact on additional social protection provided by the undertaking
(4)	Aid for exceptional costs related to closure	-/= if the option keeps some mines (temporarily) alive, there may be a negative impact on the health of the concerned miners, depending on health and safety provisions in the concerned mines.	++ If the option keeps mines open, this may have a positive impact on additional social protection provided by the undertaking. In addition, the option also concerns the financing of such additional protection for miners losing their jobs following restructuring/closing
(5)	Combination of (3) and (4)	-/= if the option keeps mines (temporarily) alive, there may be a negative impact on the health of the concerned miners, depending on health and safety provisions in the concerned mines.	++ If the option keeps mines (temporarily) open, this may have a positive impact on additional social protection provided by undertaking. In addition, there is additional support for mine workers.
(6)	10-year continuation of the current Coal Regulation	- if the option keeps mines open (for up to 10 years), there may be a negative impact on the health of the concerned miners, depending on health and safety provisions in the concerned mines.	++ If the option keeps mines (temporarily) open, this may have a positive impact on additional social protection provided by undertaking. In addition, there is additional support for mine workers.

Table 5: social impact of the policy options (continuation)

	Social impacts on third countries
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(1)	Baseline scenario	<p>1. increasing coal imports could favour production in countries with poor social standards without improving the latter</p> <p>2. increasing coal imports may also favour the development of under-developed third countries (e.g. South Africa, Colombia, Indonesia)</p>
(2)	Guidelines	<p>=</p> <p>1. increasing coal imports could favour production in countries with poor social standards without improving the latter</p> <p>2. increasing coal imports may also favour the development of under-developed third countries (e.g. South Africa, Colombia, Indonesia)</p>
(3)	Production aid until closure	<p>+ may (temporarily) reduce imports from countries with poor social standards</p> <p>- may (temporarily) reduce – or slow the increase of - the import from countries in need of economic development</p>
(4)	Aid for exceptional costs related to closure	<p>= could reduce imports from third countries if some mines can keep open that could not bear the exceptional costs; however, this is only a by-effect and continuation of production is not the objective of this measure</p>
(5)	Combination of (3) and (4)	<p>+ may (temporarily) reduce imports from countries with poor social standards</p> <p>- may (temporarily) reduce – or slow the increase of - the import from countries in need of economic development</p>
(6)	10-year continuation of the current Coal Regulation	<p>+ may reduce imports from countries with poor social standards</p> <p>- may reduce – or slow the increase of - the import from countries in need of economic development</p>

In this table, option 5 shows the most favourable social impact when compared with the baseline scenario. The combination of a gradual closure of mines, allowing maximizing (early) retirement possibilities and complementary support in terms of counseling and retraining, effectively reduces the negative social impact of the mine closures in the regions concerned. Although – despite its high cost - it does not promote the creation of permanent jobs, it directly addresses the problem that the social impact of mine closures is geographically concentrated in a few regions.

6.4.8. *Uncertainties with respect to the social and regional impact*

With respect to regional and social impacts, one further point needs to be highlighted (in addition to the uncertainties mentioned in paragraph 6.3.9). The assessment carried out here concerns only the coal-mining regions. As the money spent in the mining regions cannot be spent elsewhere, it would also be necessary to compare whether the same money would not lead to even better results in other sectors or regions. The study of *Europe Economics*⁶⁰ points to the possibility that there are opportunities to create jobs in other sectors at costs inferior to the cost for saving jobs in the coal industry (e.g. in

⁶⁰ See footnote 3.

the renewable energies sector). This however would not necessarily respond to the social impact of the mine closure on the particular region concerned.

6.5. Environmental impacts of the policy options

6.5.1. Overview of the environmental aspects

The impact of mining on the environment largely depends on the method of mining adopted, the geo-mining conditions of the area in question, and the size and duration of the mining operations. Even though the method adopted for mining is often selected according to the characteristics of the coal seam and geo-mining conditions, political and social considerations can exercise an influence in the choice of mining method adopted. Regardless of the method of mining chosen, coal mining affects the environment in a number of ways. The following main categories of impact can be distinguished:

- Visual and biodiversity impact on the landscape
- Impact on ground water and soil subsidence in underground mining areas
- Impact through mining waste
- Emissions of greenhouse gases during the production, the transport and the burning of coal
- Emissions of pollutants (except greenhouse gases) linked to the burning of coal

Visual and biodiversity impact on the landscape

The impact on the landscape and on biodiversity is very different between open-cast mining and deep mining. Open-cast mining has a major impact on the landscape and biodiversity by creating virtually "moon landscapes". The impacts can be partially remedied after the end of mining through environmental rehabilitation.

Deep mining – as for most of hard coal in Europe - affects the landscape above the mines only to a minor degree, but can create pressure on water and water-based ecosystems through changes in the ground water level. Impacts depend on the region where the mining takes place and the biodiversity present before the start of mining operation.

Particulate matter resulting from mining activities has been shown to be detrimental to local fish populations. Enhanced sedimentation within aquatic environments has the effect of inhibiting spawning and the development of fish eggs and larvae, as well as smothering benthic fauna (fauna that inhabit the bottom/beds of rivers and lakes). In addition, high turbidity may impair the passage of light, which is necessary for photosynthetic activity of aquatic plants⁶¹.

There is, to the knowledge of the Commission, no exhaustive assessment of the damages which mining causes to biodiversity and landscape. Some Member States have

⁶¹ Ibid

reported impact of mining activities on water and water-based eco-systems in their reports under Article 5 of Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy (hereafter: the Water Framework Directive)⁶². It results from these reports that mining activities can create significant pressure on water and water-based ecosystems, both by changing the ground water level and by releasing pollutants.⁶³ One particularly well documented example is the impact of open-cast mining in Germany on the *Meuse* river.⁶⁴

With respect to the impact of biodiversity on mining in general, there is an on-going dialogue between the International Union for the Conservation of Nature (IUCN) and the International Council on Mining and Metals, which has elaborated extensive best practice guidance on how to minimize the biodiversity impact.⁶⁵

However, it has to be noted that, as subsidised coal will be, at least to a large extent, replaced by imported coal, additional impacts on the landscape and on biodiversity are to be expected in the countries from which this coal is imported.

Impact on ground water

The average use of water in coal mining varies from 60 to 120 litres per metric tonne in underground mining and about 17 litres per tonne for surface mining (El-Hinnawi 1981⁶⁶). In addition, approximately 30 litres of water per tonne is required for waste disposal both in surface and underground mining. Large volumes of mine water are also discharged through areas of the mine and carries with it any soluble minerals that may be present either in the coal or associated rocks, which causes degradation of water quality. The mine water may be acidic or neutral depending upon the pyrite content in the coal. Acid mine drainage occurs in those mines in which sulphur content is found in the range of 1–5% in the form of pyrite (FeS₂). It degrades the water quality of the region in terms of lowering the pH of the surrounding water resources and increasing the level of total suspended solids, total dissolved solids and some heavy metals. In non acidic mines, water quality shows high hardness and bacterial contaminants. High values of hardness of mine water reduces its utility for domestic consumption. Some

⁶² OJ L 327, 22.12.2000, p. 1.

⁶³ The reports can be found under http://forum.europa.eu.int/Public/irc/env/wfd/library?l=/framework_directive/implementation_documents_1/wfd_reports&vm=detailed&sb=Title.

⁶⁴ See the Meuse roof report, available on-line under http://www.cipmicbm.be/files/dce/31/Rapport%20final%20MEUSE_angl_def_4Mb.pdf. The report describes that for most of the groundwater bodies in the German Meuse river basin district, the risk of pressures due to chemicals (i.e., NO₃, and NH₄, SO₄) originates from diffuse pollution, in particular that resulting from intensive agricultural activities. The good chemical status of many groundwater bodies is at risk because of high sulphate concentration. This is due to intense mining activities (e.g. spoil tips from coal mining, opencast mining operations) and to specific agricultural or industrial pressures. The groundwater bodies in opencast mines (*Inden* open-cast mine, GWK 282_06, and *Garzweiler* open-cast mine, GWK 286_08) are influenced by intensive pyrite oxidation.

⁶⁵ See for an overview <http://www.iucn.org/themes/business/mining/index.htm>.

⁶⁶ El-Hinnawi. Essam. (1981) *The Environmental Impacts of Production and Use of Energy*, Dublin: Tycooly Press

mines (in Germany, anthracite mines for example) also present a hazard in terms of collapsing buildings due to the need to pump off excess ground water.

Impact through mining waste

Coal mines produce waste mainly through the fact that the coal needs to be washed and cleaned from residues, before it can be sold. This makes it necessary for mines to deposit the residues material near the mining site. This waste can be avoided, if the material is used to fill abandoned mining galleries in order to stabilize them. The amount of mining waste is a direct function of the mining activity; if mining activity is reduced, then the environmental impact through mining waste would be reduced accordingly. Also here, it has to be noted that there will be some additional waste in third countries, as indigenous coal will be replaced, to a certain extent, by imported coal from third countries.

Emissions of greenhouse gases during the production, during transport and during burning of coal

Production. Coal mining releases methane, a very powerful greenhouse gas. The Europe Economics Study reports that both deep mining and open cast mining create methane emissions, but that deep mining has higher methane emissions per ton of coal produced. Methane emissions from coal mines can be reduced through methane capture; the captured methane can then be used to produce electricity in a combined gas cycle turbine (which is done in at least a part of the European mines).

There is very limited data availability on methane emissions from European coal mines; it has not been possible, in the framework of this impact assessment, to assemble data covering the different countries and mining areas.

In addition, the production of coal consumes itself energy. The IEA has calculated that the overall energy consumption of coal mines in the EU Member States which are also Members of the OECD (the EUR 19) amounts to 1,983 ktoe in 2003, out of which electricity accounts for 1,114 ktoe, diesel 54 ktoe, hard coal 409 ktoe and anthracite 409 ktoe.⁶⁷

Transport. The transport of coal from the mine head to the power plant consumes energy for transportation. Depending on the available mode of transport (inland waterway or railway) and the distance, the consumption of energy varies. The *Europe Economics Study*⁶⁸ reports that in general, imported coal has considerably higher CO₂ emissions for transport than domestic coal.

It is very difficult to clearly establish the environmental impact of the envisaged scenarios on greenhouse gas emissions during the production and during transport, for several reasons.

⁶⁷ See International Energy Agency, Energy balances of OECD countries 1960 to 2003. 2005 edition on CD ROM. OECD/IEA 2005.

⁶⁸ See footnote 3.

First of all, the exact methane emissions of the domestic coal industry are not known. Mining technology in general and methane capture in particular are highly developed in Germany. It thus seems likely that the methane emissions in other Member States might be higher.

Secondly, it is difficult to know in advance what kind of imported coal will replace the subsidised domestic coal. Depending on the method of mining (deep or open cast), depending on the transport distance, and depending on the mining technology used, the greenhouse gas emissions of imported coal may vary considerably.

Overall, the environmental trade-off between domestic productions and coal imports is uncertain. Shorter transport ways and higher standards for methane capture in European mines would plead in favour of domestic production. But the fact that a lot of the international coal production takes place in open cast mines, which emit less methane, would rather plead in favour of imports, as long as this is not counter-balanced by methane capture. The impact of the various scenarios with regard to greenhouse gas emissions is thus ambiguous.

Burning of coal. As explained before, the overall use of coal as an energy source should not be affected by the choice between the assessed policy options, as the reduction in the production of indigenous coal will likely be replaced by imported coal. However, several studies concluded that due to non-rational economic behaviour, the use of coal under a system with subsidies could be higher than it would be absent the subsidies⁶⁹.

6.5.2. *The impact of the policy options*

Overall, the closure of uncompetitive mines seems to have a positive impact on the immediate environment of the mines. However, in case coal subsidies continue temporarily, aid for exceptional costs related to closure may be directed to mitigate the environmental impact and to allow an immediate clean-up of closed mining sites, even if the mining undertaking would normally not be able to finance such. Furthermore, it needs to be mentioned that mine closures need to be prepared well in advance in order to avoid possible negative environmental impacts on the immediate environment of the mine (e.g. the spatial distribution of the mine's remaining exploitation needs to be planned years in advance to avoid that a sudden interruption of the exploitation would lead to damages to the landscape above the mine).

With regard to greenhouse gases, while the closing of a mine stops any emissions from the mining activity, its impact on global emissions remains uncertain when the electricity generation is taken into account. This follows from the likely substitution of indigenous coal by imported coal. Indeed, to appreciate the impact on global emissions, we need to take into account the environmental effect that a substitution of domestic by imported coal would have on the environment of the third countries concerned. As this is very difficult – we do not know in advance where the additional coal will be produced and under which environmental conditions -, there are uncertainties regarding the overall environmental impact. Only a gradual switch from coal to other energy

⁶⁹ See OECD, "The energy, environment and economic effects of phasing out coal subsidies in OECD countries", study carried out by DRI for the OECD Environment Directorate, April 1994.

sources for the electricity production, in parallel to the closure of domestic coal mines, would have a more certain impact on greenhouse gas emissions.

As there are many uncertainties surrounding the environmental impact of coal mining, it is difficult to evaluate the various policy options from the overall environmental perspective. Table 6 gives an overview of the impact of the policy options for the EU (the table gives the impact on the EU environment, only for greenhouse gases is the global effect taken into account).

All the policy options assessed aim at the reduction of coal subsidies, but with different degrees of gradualism, and may also contribute to a gradual switch to other energy sources. Whether a gradual reduction of the subsidies (as in options 2 to 5, and perhaps 6) or an immediate stop of subsidies (option 1) leads to a faster switch also depends on the modalities of the national support schemes (e.g. if they are embedded in a general plan favouring the switch to other energy sources).

Table 6: environmental impact of the policy options (impact in the EU only) (comparison to the baseline scenario)⁷⁰

		Visual and biodiversity impact on landscape	Impact on ground water and soil subsidence
(1)	Baseline scenario	Closure of mines significantly reduces the impact of open-cast mining, less for underground mines.	Potential damages will be stopped for closed mines in the EU, may be enhanced in mines from where imports originate.
(2)	Guidelines	-/= same as option 1, except that production could last a few months longer	-/= Potential damages will be stopped for closed mines. But mining may continue for a very short time.
(3)	Production aid until closure	-/= closure aid will be temporary, but in the meantime the negative impact will continue. However, a better planning of the closure avoids negative impacts on the landscape.	-/= possibility of further damage during temporary continuation of mining
(4)	Aid for exceptional costs related to closure	=/+ aid for the rehabilitation of mining sites may help to remedy (part of) the impact	=/+ aid helps to cover the costs of damages
(5)	Combination of (3) and (4)	-/= closure aid will be temporary, but in the meantime the negative impact will continue. However, a better planning of the closure avoids negative impacts on the landscape.	-/= possibility of further damage during temporary continuation of mining.
(6)	10-year continuation	- production could continue	- further damage for up to 10 years

⁷⁰ The signs "+" and "-" in the table are to be seen as a comparison with the baseline scenario.

	of the current Coal Regulation	without big reduction for up to 10 years	
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Table 6: environmental impact of the policy options (continuation)

		Impact through mining waste	Emission of greenhouse gases
(1)	Baseline scenario	Waste can directly be avoided by stopping the coal production	Closing mines reduces methane emissions, but unknown in how far they are compensated by higher emissions from imported coal for power generation (methane released by third country mines and emissions from transport).
(2)	Guidelines	= very similar to option 1, production will only continue for a very short time	= same as option 1
(3)	Production aid until closure	-/= waste production would continue where mines are temporarily kept open	unknown impact (uncertainties with regard to the degree of substitution by imported coal for power generation and to the geographical origin and the production methods of imported coal)
(4)	Aid for exceptional costs related to closure	= this type of aid is not expected to affect waste production	= not affected by this option
(5)	Combination of (3) and (4)	-/= waste production would continue where mines are temporarily kept open	unknown impact (uncertainties with regard to the degree of substitution by imported coal for power generation and to the geographical origin and the production methods of imported coal)
(6)	10-year continuation of the current Coal Regulation	- waste production could continue without significant reduction for up to 10 years	Unknown impact

6.6. Impact on SMEs

The number of small and medium-sized enterprises is rather limited as shown in table 7. Smaller coal mining enterprises can mainly be found in Spain.

Table 7: number of companies according to number of persons employed (subsidiary Member States – 2008/2009)

	Germany	Spain	Poland	Romania	Hungary	Slovakia
Micro enterprise	0	1	0	0	0	0

(1-9 employees)						
Small enterprise (10-49 employees)	0	6	0	0	0	0
Medium enterprise (50-249)	0	5	1	0	0	2
Big enterprise (more than 250)	1	5	6	1	1	1
Total	1	17	7	1	1	3

With regard to State aid, SMEs of the hard coal sector are not expected to be in a different situation than the bigger companies.

It must be considered that there may be a lot of SMEs among the suppliers and sub-contractors of the coal mines. However, exact figures are lacking.

6.7. Impact on administrative costs

The provision of State aid generates an administrative cost for the authorities and the undertakings concerned.

For the national authorities, this relates to the preparation of the budgets and the control of the correct use of the financial means. Furthermore, State aid implies the notifying of aid and the reporting towards the European Commission. Approximate estimates from the main Member States providing aid to the coal industry indicate an administrative cost between 0.15 and 0.25% of the total amount of aid, depending on the number of beneficiaries. This corresponds to a total cost between EUR 5 and 8 million for the EU (including an administrative cost of about EUR 100,000 for the Commission). Note that this administrative cost does not diminish proportionately with the amount of aid as the amount of work remains roughly the same, as long as the number of beneficiaries remains stable.

Furthermore, these administrative costs could not be avoided completely, even in case of the expiry of the Coal Regulation (option 1) as State aid could still be provided on the basis of the general State aid rules, and as the financial support for the inherited liabilities of closed coal mines would still necessitate the same administrative effort, even if the financial support would no longer constitute State aid.

Finally, there are no estimates as to the administrative cost of State aid for the undertakings concerned. This would mainly relate to the applications for State aid and the reporting on the correct use thereof.

7. COMPARING THE OPTIONS

The results of the previous sections give a contrasted picture of the impact of the various policy options:

- From an economic point of view, option 2 (Guidelines) seems to be preferable to the baseline scenario in terms of mitigating the direct economic impact on the most concerned regions and industries.
- From a social point of view, option 5 offers the best possibilities to cushion the negative impact of the mine closures, especially given the geographical concentration of this impact.
- From an environmental point of view, there is a lot of uncertainty. Although the immediate environment of the mines would certainly benefit from an immediate or almost immediate stop of production (options 1, 2 and 4), the picture is uncertain with regard to global greenhouse gas emissions when the emissions from the burning of coal by electricity producers are taken into account. This uncertainty results from the high substitution rate of domestic coal by imported coal. Although this would not be a 100% substitution, the difference between the policy options would depend upon the modalities of the national policies with regard to favouring the switch to other energy sources. Finally, with regard to the local impact, we need to consider that a gradual closure as in options 3 and 5 allows to better taking account of preparations that need to be done well in advance of the closure (potential impact on landscape).

All in all, options 2 and 5 stand out as the most adequate to attain the policy objectives defined in section 4. The choice for one of these two options depends on the weight that policymakers attach to the economic aspects on the one hand and the social aspects on the other hand. The environmental impact depends more on the mode of implementation of the options than on the options themselves.

The following table gives a synthetic overview of the policy options' effectiveness with regard to the specific policy options defined in section 4. The preferred options 2 and 5 have been compared with the baseline scenario. In addition, option 6 has been added to the table, given that it is the preferred option of most stakeholders.

Table 8: comparison of the policy options on the basis of the policy objectives

Policy objectives	(1) Baseline	(2) Guidelines	(5) Closure aid + aid for exceptional costs	(6) Prolongation of the Coal Regulation
Reduce the social impact of coal mine closures	About 100 000 jobs will be lost at once. General labour market policies could be complemented by specific support for former coal	Same as (1), but mine closures can be organised in a more orderly fashion.	The reduction of activity can be spread over time in order to limit firing and to facilitate the absorption of the unemployed by	The same policies as under (5) are possible, but there is a risk that the policy objective will be missed: there is a lack of incentive to prepare for the

	miners.		the labour market.	closure of the mines and to support a reconversion of the work force.
Ensure the cleaning and rehabilitation of abandoned mines	In case of bankruptcy of the mining undertaking, the State can organise the rehabilitation of the site. However, there is a risk that useful preparatory work cannot be carried out because of the immediate stop of activities.	The rehabilitation of the site can be started immediately during the closure period, thereby effectively preparing rehabilitation work while production is run down.	The rehabilitation of the (to be) closed mines can be prepared before production stops, even if the mining undertaking does not have the necessary means.	Same as (5) is possible, but it is also possible that the closure will not be prepared at all as the closure of the mines is not necessarily planned.
Minimise distortions of competition	Possible (although limited) distortions of competition by State aid are avoided altogether.	Distortions of competition by State aid are limited to a very short period of time. Furthermore, the low volume of intra-EU trade in hard coal is limited and therefore the impact of State aid on the internal market is very limited anyway.	Distortions of competition by State aid are limited to the closure period. Strictly degressive aid leads to a quick reduction of possible distortions. Furthermore, the low volume of intra-EU trade in hard coal is limited and therefore the impact of State aid on the internal market is very limited anyway.	There is no guarantee that State aid will be reduced quickly. However, the low volume of intra-EU trade in hard coal is limited and therefore the impact of State aid on the internal market is very limited.

8. MONITORING AND EVALUATION

State aid granted by Member States is subject to the notification and reporting requirements of Regulation 659/1999⁷¹. In addition, the current Coal Regulation imposes national reporting of aids specifically for the hard coal sector.

The Commission will continuously monitor the developments in the hard coal sector and evaluate on a regular basis the impact of the changed legislative context.

⁷¹ OJ L 83, 27.3.1999, p. 1.

More specifically, the Commission will observe market developments with regard to the following issues:

- Evolution of State aid in the sector;
- Evolution of productivity and employment in the sector;
- The impact of coal mine closures on regional development and on related industries;
- The redeployment of former coal mine workers;
- The reconversion of the regions concerned by coal mine closures;
- The evolution of intra-EU trade in hard coal and the impact of mine closures;
- The rehabilitation of former mining sites.

Data on State aid are already collected by the Commission in the context of the so-called "scoreboard" on State aid. Data on trade, employment and productivity can be derived from Eurostat data. Other, more specific information on the impact of mine closures on regional economies and on the mine workers can be prepared by ad hoc studies or - depending on the option chosen – be part of the reporting requirements linked to the authorisation of State aid.

ANNEX 1

Historical background

Since 1965, the Commission has authorized, on different legal bases, State aid to the Coal industry. The aim of authorizing this State aid has been threefold:

- Overcoming the lack of competitiveness of the EU coal industry through restructuring;
- Reducing the dependence on foreign imports of energy and increasing the EU's energy security;
- Mitigate the often difficult social situation in coal mining areas.

State aid to the Coal industry was covered until its expiry in 2002 by the Treaty on the European Community of Coal and Steel (hereafter: the ECSC treaty). Its Article 4(c) set out a general prohibition of State aids:

The following are recognized to be incompatible with the internal market for coal and steel, and are, therefore, abolished and prohibited within the Community in the manner set forth in the present Treaty:

(c) subsidies or state assistance, or special charges imposed by the state, in any form whatsoever;

However, as of 1965, it became clear that the strict application of Article 4(c) would have meant the close down of most of the underground mines in Europe, because they were no longer competitive on the world market for coal. Following proposals of the Commission, the Council adopted a total of four consecutive ECSC decisions, laying down the conditions under which State aid to the coal industry could be granted. The legal basis for these decisions was Article 95(1) ECSC treaty:

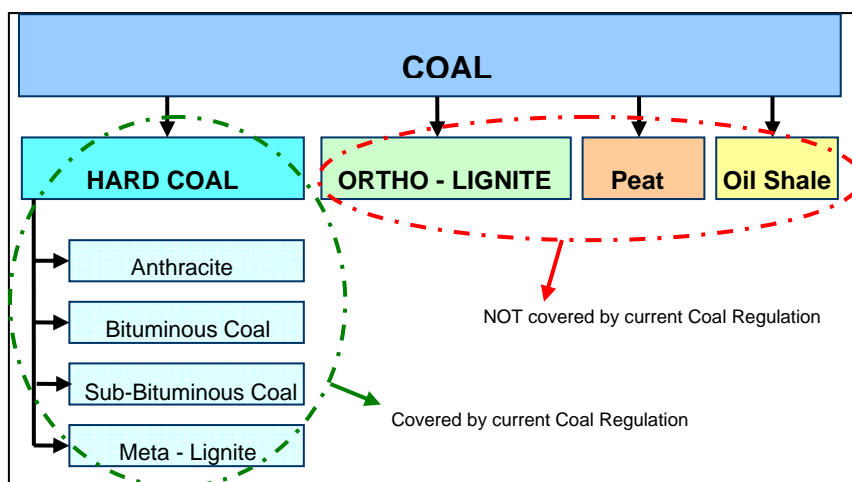
In all cases not expressly provided for in the present Treaty in which a decision or a recommendation of the High Authority appears necessary to fulfill, in the operation of the internal market for coal and steel and in accordance with the provisions of Article 5 above, one of the purposes of the Community as defined in Articles 2, 3 and 4, such decision or recommendation may be taken subject to the unanimous concurrence of the Council and after consultation with the Consultative Committee.

The authorization and granting of State aid allowed alleviating the social consequences of the close-down of coal mines all over Europe. Of the mining Member States, Belgium phased out mining the first in the 1970ies; it was followed since then by France. Portugal closed its last mine prior to joining the EU; so did the current candidate country Croatia. The other mining Member States have considerably reduced the size of their coal mining industry, but not phased out mining completely.

It is important to note that the Commission authorized aid under the ECSC decisions only for mines which produced "coal" in the sense of Annex I ECSC. State aid to lignite mines was excluded from the ECSC treaty. The distinction between "coal" and "lignite"

was thus of crucial importance under the ECSC treaty. The Commission issued guidance in this respect in a Communication of 1986.⁷²

After the expiry of the ECSC treaty on 23 July 2002, the rules of the EC treaty apply to State aid for the coal industry. Now, it is necessary to distinguish between on the one hand mines producing low-grade C coal in the sense of the international codification system for coal laid down by the United Nations Economic Commission for Europe⁷³ and on the other hand high-grade, medium-grade and low-grade category A and B coal within the meaning of the international codification system for coal laid down by the United Nations Economic Commission for Europe, cited above. The latter are covered by the Coal Regulation (see Article 2 (a) of the Regulation), cited above, whereas the former are subject to the general State aid rules.



The Coal Regulation has been adopted on the basis of Article 87(3)(e) EC Treaty, and established an exception to the general prohibition of State aid. It allows for operating aid (Article 4 and Article 5 § 3), investment aid (Article 5 § 2) and aid for inherited liabilities (Article 7) to coal mines, subject, regarding Articles 4 and 5, to the condition that the aid follows a downward trend (Article 6) and that Member States include the mines into a plan for access to coal reserves, which needs the approval of the Commission (Article 9):

- (a) **Aid for accessing coal reserves:** Countries providing aid for ongoing activities (e.g. current production aid (Article 5(3)), and aid for initial investments and accessing reserves on any scale (Article 5(2));

⁷² Communication of the Commission concerning the interpretation of the expressions “coal” and “lignite” mentioned in the annex I of the ECSC treaty of 11 October 1986 (OJ C 254, 11.10.1986, p. 2). According to this Communication, the “black lignite” produced in Spain, as well as the coal in the Italian mining area of *Sulcis* (Sardinia), constitute “coal” in the sense of Annex I ECSC, whereas the “brown lignite” found in different Member States, as well as the coal produced in the French area of *L’Arc* (Gardanne) constituted lignite in the sense of Annex I ECSC.

⁷³ International system for the codification of medium-grade and high-grade coal (1998); International classification of coal in seam (1998) and International system of codification for low-grade coal (1999).

- (b) **Aid for reduction of mining activity:** Countries providing aid for ongoing activity for mines that are under a closure plan (Article 4, only applicable until the end of 2007); and
- (c) **Aid to cover exceptional costs:** Countries providing aid to cover exceptional costs of restructuring and decommissioning, as well as of inherited social and environmental liabilities of closed mines (Article 7).

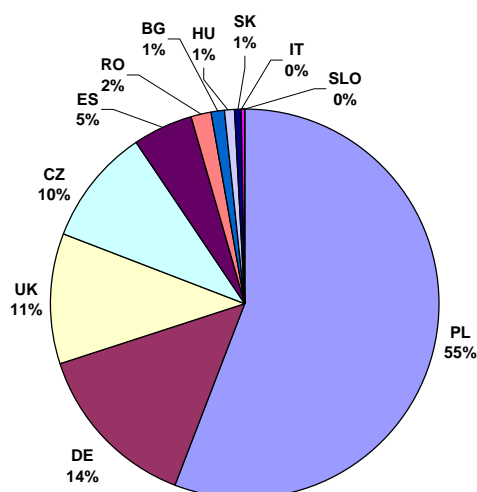
ANNEX 2

The current market situation

Hard coal production in the EU

Hard coal reserves in Western and Southern Europe have significantly decreased over the past 50 years due to high production levels and the closure of many uneconomic mines, while Eastern European Member States still have higher reserve levels. Today, the largest hard coal resources are located in Poland, with significant resources also available in the Czech Republic, UK and Germany. The EU presently accounts for approximately 125 million tonnes of coal equivalent (Mtce) of hard coal production. Poland accounts for more than half of the EU production, while the other half is mainly produced by Germany, the United Kingdom, the Czech Republic and Spain.

Chart 1: production of hard coal in the EU (Mtce, 2007; Ecorys data)



The coal production has been declining steadily over the last two decades. A number of Member States have stopped the hard coal production altogether, such as France and Belgium.

Hard coal accounts for 12% of the EU's gross inland energy consumption. This percentage can be split up between 5% of domestically produced hard coal and 7% of imported hard coal.

Chart 2: gross inland energy consumption (Mtoe, 2006; Eurostat data)

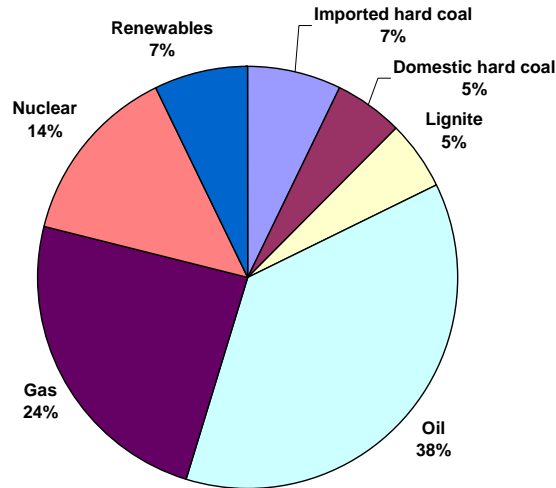
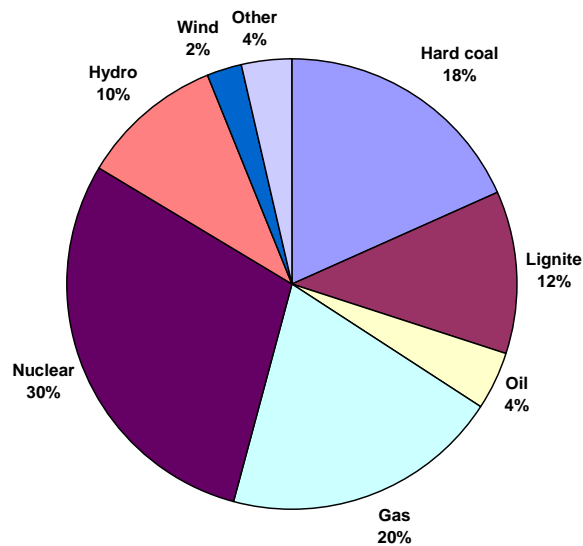


Chart 3: gross electricity generation in the EU (Gwh, 2006; Eurostat data)

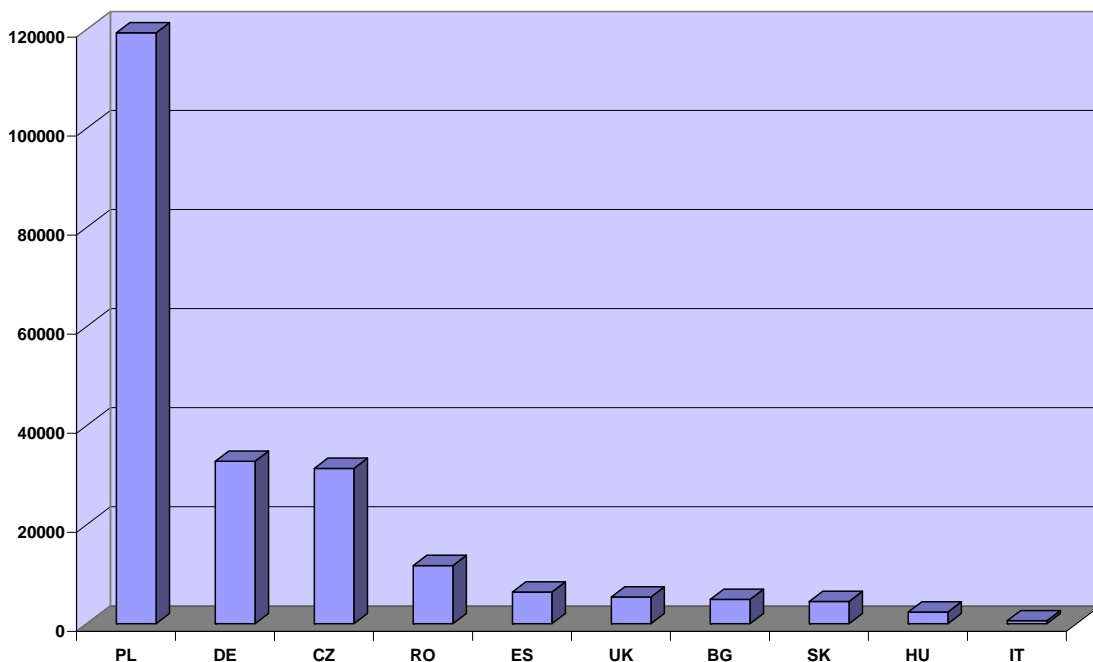


As far as electricity production is concerned, most Member States use a diverse range of fuels in the process of electricity generation. While the particular mix of fuels differs between countries, a significant level of reliance is placed on coal, gas, nuclear and hydro.

Hard coal accounts for 18% of the EU's electricity production. Note that these percentages vary a lot between Member States. For example, hard coal accounts for about 57% of electricity generation in Poland, 51% in Denmark, 35% in the UK and 21% in Germany, but less than 5% in France and Romania⁷⁴. Not surprisingly, coal plays a much more prominent role in the domestic power generation of coal-producing countries; almost all coal-producing Member States use a much higher share of coal for their domestic power generation than the EU average.

Employment in the EU hard coal industry

In 2007, about 220 000 persons were employed in EU hard coal production, of which more than half in Poland. Similarly as for production, the employment level is on a clear declining trend.



State aid to the hard coal industry

With the 1407/2002 Regulation in place, over €26 billion of State aid to the hard coal sector has been approved between 2003 and 2008. In addition, a number of forward plans for aid in the years to 2010 have already been made. However, the total amount of subsidies to EU hard coal follows a downward trend: the yearly amounts have been halved between 2003 and 2008 (from €6.4 billion in 2003 to €3.2 billion in 2008).

The following table gives an overview of State aid to the EU hard coal sector:

⁷⁴ Source: Euracoal (figures for 2007).

Table 1 - State Aid 2003-2008 - amounts actually granted by Member States or authorised by the Commission for the relevant year

(Million €)

Country	2003	2004	2005	2006	2007	2008
Germany						
- current production aid	2639	2483	2114	1472	1347	727
- aid related to exceptional costs	780	556	602	882	994	1055
Spain						
- current production aid	569	340	502	467	448	434
- aid related to exceptional costs	550	573	582	345	359	373
France						
- current production aid	202	119	0	0	0	0
- aid related to exceptional costs	715	769	0	0	0	0
United Kingdom						
- investment aid	22	30	36	14	1	2
- aid related to exceptional costs	14	0	0	0	0	0
Poland						
- aid related to exceptional costs	903	913	369	60	87	169
Czech Republic						
- aid related to exceptional costs	n/a	15	15	15	15	0
Romania						
- current production aid	n/a	n/a	n/a	n/a	112	93
Hungary						
- current production aid	n/a	44	39	38	36	34
Slovakia						
- investment aid	n/a	n/a	2	4	3	3
- aid related to exceptional costs	3	2	3	3	3	3
Slovenia						
- aid related to exceptional costs	2	2	15	17	17	18
Total EU27	6399	5846	4279	3318	3422	2911
- current production aid	3410	2986	2655	1977	1943	1288
- investment aid	22	30	38	18	4	5
- aid related to exceptional costs	2967	2830	1586	1323	1475	1618

ANNEX 3

Summary of the contributions received by the Commission following the public consultation on the aftermath of the expiry of Regulation (EC) 1407/2002 on State aid to the coal industry.

This document does not express the position of the Commission; neither does it commit the Commission, nor should it be assumed that it will be the position taken by the Commission following the consultation process.

On 13 May 2009, the Commission launched a public consultation to obtain interested parties' comments on the aftermath of the expiry of Council Regulation (EC) 1407/2002 on State aid to the coal industry (the "Coal Regulation"). To this effect, the Commission services published a consultation paper on its Internet website "Your voice in Europe". The consultation was closed on 15 July 2009.

In addition, the Sectoral Social Dialogue Committee "**Extractive Industries**" was consulted in a plenary meeting on 4 June 2009.

The Commission received 60 contributions, breaking down into the following groups:

- The common contribution of the social partners of the Sectoral Social Dialogue Committee "Extractive Industries"
- Undertakings and associations of the coal industry: 16
- Electricity producers: 2
- Producers of mining equipment: 3
- Other undertakings and industry associations: 4
- Trade Unions: 13
- Environmental associations: 2
- Public authorities: 12 (9 national governments + 3 regional and other)
- Individual contributions: 8

A complete list of contributors is given in the annex. All contributions can be consulted on the Commission's website: http://ec.europa.eu/energy/coal/consultations/2009_07_15_en.htm.

General overview

In the consultation paper, the Commission services defined the specific policy objective as to minimize the possible adverse effects of mine closures that may follow a phasing-out of subsidies, especially with regard to their social and environmental aspects. Policy options were then discussed in order to attain this objective.

The respondents of the coal industry and of the mining equipment industry generally contested the policy objective itself by arguing in favour of the continuation of the State aid categories currently allowed under the Coal Regulation. The social partners stressed that such continuation would be necessary to support the sector's restructuring efforts, to limit its social and regional aspects, and to ensure the security of supply of energy by guaranteeing the access to coal as an indigenous energy source. They call for a continuation of the Coal Regulation and ask at least for a new Community regime on State aid for the reduction of activity as well as for covering mine closures and inherited liabilities.

Several respondents emphasized that a part of the electricity power plants were specifically designed to be fired with the coal of a given (nearby) mine. The adaptation of these power plants to other coal types or even to other energy sources would be very expensive and in some cases even technically impossible. If the expiry of the Coal Regulation led to the closure of the nearby mines, then these power plants would encounter difficulties to continue their production.

The environmental organisations do not favour a new sector-specific State aid regime for the coal sector. They argue that State aid to coal has a negative impact on the energy production from clean, sustainable and renewable sources and it does not provide incentives for the energy efficiency and savings. According to them, if coal mines were to close, this would have a medium-term favourable environmental impact, by the increasing use of alternative energy sources. Finally, these organisations also believe that, by not prolonging this specific regime, subsidies could be redirected at supporting the workforce of the coal mines in retraining and finding other jobs. They argue that more jobs could be created in the renewable energy sector than would be lost in the coal sector.

The governments of Spain, Slovakia, Hungary and Romania are in favour of a prolongation of the current Coal Regulation. They refer to the necessity to ensure the security of energy supply by continuing the production of indigenous coal and to the impact that mine closures would have on regional unemployment. Poland pleads for a new Regulation allowing investment aid and aid for inherited liabilities. Germany favours sector-specific rules that would allow State aid in the context of the gradual closure of its mines until 2018; this would allow using all possibilities of retraining and (early) retirement in order to avoid direct job losses.

The Czech Republic and Bulgaria currently do not grant State aid based on the Coal Regulation, but they concede that a coal-specific legal instrument may become useful in future years. The United Kingdom prefers the issue of an information note or Commission Guidelines on the application of general State aid rules to the hard coal sector instead of new sector-specific rules. However, the UK acknowledges that circumstances may arise in which an appropriate programme of well-defined and time-

limited aid could be justified to secure the survival of an otherwise viable undertaking. Furthermore, well defined investment aid could help potentially viable undertakings to maintain access to reserves.

Specific aspects

Impact of the expiry of the Coal Regulation on the hard coal industry

The respondents confirmed that most of the coal mining undertakings that currently receive State aid would not be able to survive without aid granted under a sector-specific State aid regime. As mentioned in the Ecorys study this is the case for Germany, Spain, Hungary and Romania. But also respondents from Poland, the Czech Republic, Slovakia and the United Kingdom were concerned that coal mining undertakings in these countries may need State aid in coming years that goes beyond what is allowed under general State aid rules.

Security of supply / operating aid

A large majority of respondents argue that continued State aid to the hard coal industry is needed in order to ensure the security of energy supply in the Community. According to them, the need for diversified energy sources and for reduced dependence on third countries for energy supplies justifies State aid for the hard coal sector in order to keep access to this indigenous energy source. In most cases, these respondents call for continued operating aid. Some argue that for the sake of the security of supply, such operating aid should not be degressive⁷⁵. Some respondents also claim that such aid would have a limited impact on the internal market, given that there is hardly any trade of coal between Member States.

However, according to some respondents, hard coal should be readily available on world markets from a number of economic stable countries, even if prices may become more volatile than in the past. In particular, the environmental organisations do not believe that the security of energy supplies would be endangered by reduced coal production in the Community, because of easily available coal on world markets and the increasing importance of renewable energy sources (which are also indigenous).

Investment aid

Currently, investment aid is only provided in one Member State (Slovakia) and most respondents did not request the possibility for investment aid in the future.

However, respondents from trade unions and coal mining undertakings in the United Kingdom and in Poland pointed to the potential need for investment aid after 2010. While the Polish respondents are in favour of direct investment grants to increase production capacity, respondents from the UK pointed to the very high initial financing requirements to access new reserves and the difficulty to obtain bank finance without a State guarantee. They believe that the regional aid guidelines will not always allow such

⁷⁵ For one respondent, such operating aid should be kept until coal production would be profitable with CCS.

investment aid as the coal reserves are not necessarily located in the areas eligible for regional aid.

Also the Polish government refers to the need for investment aid and the UK government - although in the framework of the general State rules - asks for special attention for investment aid.

Coal-fired power stations

While one electricity provider declared that its coal-fired power station can easily switch between different coal qualities and hence would have no problem in switching to imported coal, this seems not to be the case for other power stations. Many respondents point out that coal-fired power stations, which have been designed to burn coal of a given quality – such as coal from a nearby coal mine – cannot always easily be adapted to other coal types. If the mine providing the coal would be closed, then the transformation of the burners and the adaptation of the transport infrastructure may require significant investments which the station will not always be able to bear.

Concrete examples:

- The Industrial Development Agency in Poland estimates that the modernisation of Polish power stations required by a switch to imported coal would take between 15 and 20 years. It further notes that the transport capacities (ports and roads) are limited and that because of its geographical location, Poland would be mainly dependent on coal from its eastern neighbours.

- The Hungarian Power Companies Ltd and Vertési Power Plant Ltd indicate that a cessation of aid for the only Hungarian coal mine would entail the closure of the Vertési power plant. In case of closure of the mine, the power station's boilers would need to be technically modified, but even after this modification they would not be able to attain the efficiency of modern power plants. Furthermore, imported coal could only be transported by rail, increasing its cost.

Inherited liabilities

Most respondents confirmed that coal mines currently receiving State aid would not be able to meet their inherited social and environmental liabilities in case of an end to subsidies.

Employment

Many respondents have stressed that an end to coal production would not only directly affect the jobs in the coal industry, but that there are also many jobs in related industries that would be lost.

According to Spanish trade unions, there are 12000 coal miners⁷⁶, but also 70000 other jobs in related industries. According to Polish trade unions, for each coal mining job, there are a further 2.5 jobs elsewhere in Poland. According to RAG (Germany), for each

⁷⁶ This figure seems to englobe all coal, not just hard coal.

coal mining job, there are a further 1.3 jobs elsewhere in the economy. And according to the Slovak coal producers, there are 5000 jobs in coal mining in Slovakia and 10000 related jobs.

Ortho - lignite

Respondents pointed out that the production of hard coal and ortho-lignite are very different, as the first is usually mined in deep mines while the latter is mined on the surface. Ortho-lignite production is therefore less costly and competitive without State aid. Some respondents, however, would like to extend the Coal Regulation to include ortho-lignite as well.