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"Ecodumping by energy recovery"

Peer review of the EEB-report

Review report

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Summary

Is co-incineration of waste in industrial furnaces eco-dumping? A study carried out by BZL in January 2001, for the European Environmental Bureau (EEB), concluded that this is the case. Legislation is recommended in this report to prevent this eco-dumping. We would agree that the introduction of legislation to prevent excessive damage to the environment by co-incineration is needed. We nevertheless would criticize the report in two important areas:

First, the scope of the study is too limited, for example:

- No thorough comparison is made between concentrations of pollutants in potential secondary fuels from waste on the one hand, and the fossil fuels substituted by those secondary fuels on the other. The fact that secondary fuels may have lower pollutant levels is ignored.
- No attention is paid to the potentially positive effects of co-incineration of secondary fuels on emissions of SO_2, CO_2 and process related emissions such as CO and NO_x.
- The fact is ignored that a higher temperature in some industrial furnaces influences the quality of ashes and products like cement and burned lime.
- The fact is ignored that for most industrial furnaces the concentration limits for pollutants are applied in view of product or residue quality, which restricts the range of potential secondary fuels.

Second, the report contains unfounded and disputable statements, such as:

- All applications of fly ashes and slags are unacceptable;
- Recycling of materials (like PVC) which contain pollutants is unacceptable;
- Co-incineration merely takes place in old industrial furnaces with low energetic efficiency and poor purification facilities of flue gases.

If the scope of the study had been broader and if the unfounded and disputable statements had been removed then it would not be possible to conclude that co-incineration of waste in industrial furnaces is simply 'eco-dumping'. In some instances co-incineration of waste can lead to negative environmental impacts; legislation is certainly needed to prevent this. The BZL report and this review should be seen as inputs to the discussion concerning the legislation that is needed in relation to this issue.

This review has been performed by CE, Solutions for environment, economy and technology, as an assignment for Assurre, the Association for Sustainable Use and Recovery of Resources in Europe.

1 Introduction

1.1 The 'Ecodumping' report, a clear position against co-combustion

In January 2001, BZL Kommunikation und Projektsteuerung GmbH produced the report "Ecodumping by Energy Recovery" for the European Environmental Bureau (EEB).

The study analyses the trend in EU member states to increasingly co-incinerate waste in industrial furnaces such as cement kilns and coal fired power plants.

The basic assumption of the study is that co-incineration is a form of "eco-dumping" because waste is diverted from WIP's (Waste Incineration Plants) and hazardous waste incineration plants to industrial furnaces with a less efficient flue gas cleaning system than the aforementioned waste processing facilities. The study recommends minimising the damage to the environment by:

- imposing a set of pollution limits for secondary fuels, such that the application of substitute fuels doesn't lead to increased emissions to air, water and soil compared to the use of conventional fossil fuels;
- harmonising emission thresholds for Municipal Waste Incinerators/hazardous waste incinerators and industrial furnaces co-combusting secondary fuels;
- co-firing secondary fuels only in modern and energy efficient industrial furnaces;
- adopting supplementary legislation with regard to solid residues from industrial furnaces and products from industrial thermal processes, such as cement kilns.

1.2 Reasons for the peer review

Assurre asked CE to make a peer review of this report in order to contribute to the discussion that was triggered by the EEB report. In the view of Assurre, an in-depth discussion of co-combustion in Europe is needed, in order to address all the environmental concerns and to develop a sound strategy that takes into account both environmental and economic aspects. Therefore, in addition to this peer review, Assurre is investigating the possibilities of organizing a constructive dialogue with all parties concerned.
CE carries-out projects for a wide variety of clients, including business, NGO's and governments. CE's clients range, for example, from Greenpeace to Shell. CE's business-unit CE-Transform, further, promotes stakeholder dialogues on the basis of long-term strategic visions. It should be stressed at this point that CE has not written this report to determinedly undermine the EEB report. On the contrary, an effort has been made to remain impartial and objective in our analysis of the EEB report and CE's intention in this exercise is to contribute to a constructive dialogue.

1.3 Structure of this peer review report

Chapter 2 outlines the conclusions of the peer reviewers and their view of the most important methodological aspects. The first paragraph of chapter 2 contains a summary of the remaining part of this chapter and can be read on its own. The foundation of the conclusions and a more thorough analysis of the most important methodological aspects are then discussed in the subsequent paragraphs.

In chapter 3 a page-by-page analysis of the report is given, including the detailed comments of the peer reviewers.

2 Main conclusions

2.1 Summary overview of the most important remarks and conclusions

In the "Ecodumping by Energy Recovery" study, BZL Kommunikation und Projektsteuerung GmbH "seeks to document and examine the ecological impact" (page 1) of 'ecodumping' by co-incineration of waste in industrial furnaces. In order to assess the ecological impact the chemical characterisation of different types of waste and the characteristics of relevant types of thermal waste treatment facilities and industrial furnaces are described in the study. Following this assessment, four recommendations for supplementary legislation with regard to co-combustion within the EU are made in the report. These are as follows:

- A set of pollution limits for refuse derived fuel (RDF) should be imposed, such that the application of substitute fuels does not lead to increased emissions to air, water and soil compared to the use of conventional fossil fuels;
- Emission thresholds for Municipal Waste Incinerators/hazardous waste incinerators and industrial furnaces co-combusting RDF should be harmonised;
- RDF should be co-fired only in modern and energy efficient industrial furnaces;
- Supplementary legislation should be adopted with regard to solid residues from industrial furnaces and to products from industrial thermal processes, such as cement kilns.

In our opinion the BZL study may be useful insofar as it gives an impulse to the realisation of legislation concerning more sustainable co-incineration; CE would of course agree that such legislation should be adopted. The BZL study, further, demonstrates that it may be environmentally undesirable to incinerate every type of waste in industrial furnaces with low emission standards.

However, we do not entirely agree with the legislative recommendations made by BZL. In our opinion it would be sufficient to employ the same emission limits as applied to waste incineration plants (WIPs) solely for the secondary fuels used in industrial furnaces, leaving it to the owners of the industrial furnaces to find ways to comply with these limits. This is already common practice in the Netherlands for co-incineration in power plants.
We feel that it is unfair and unbalanced to demand harmonisation of emission limits with WIP's for the entire industrial processes, just because part of the fossil fuels is substituted. This seems to infer that the environmental impact can be higher when only fossil fuels are burned. In addition, we would not agree that co-incineration should be restricted only to energy efficient plants. This is because whichever incineration plant is used, a certain amount of fossil fuels is substituted by waste products. It seems more logical to demand a minimum thermal efficiency, at least comparable to that of the substituted fossil fuel. Further, it is important to be clear on the point that the closing of energy inefficient plants is a separate issue from the harmonization of environmental impacts from fossil fuels with the environmental impacts of waste incineration.

We would question the methodology used in the study, especially in relation to the study's scope:

- No thorough comparison is made between concentrations of pollutants in potential secondary fuels from waste and the fossil fuels substituted by the first. The fact that secondary fuels can have lower pollutant levels is ignored.
- No attention is paid to the potentially positive effects of co-incineration of secondary fuels on emissions of SO_2, CO_2 and process related emissions such as CO, NO_x.
- The fact is ignored that the influence of higher temperatures in some industrial furnaces on the quality of ashes and products like cement and burned lime (= reduced leachability and availability of pollutants).
- The fact is ignored that for most industrial furnaces the concentration limits for pollutants are applied in view of product or residue quality, which restricts the range of potential secondary fuels.

Because of the confined scope, an incomplete and imbalanced picture is created, suggesting that co-incineration is always disadvantageous to the environment. This statement is literally made in the foreword and the introduction. In our opinion this view cannot be maintained when widening the scope of the study in accordance with the aforementioned remarks. It ignores the fact that governments of some member states actually stimulate co-incineration of certain secondary fuels within the framework of climate change policies.

We think that the following statements are unclear, unfounded and disputable:

- All applications of fly ashes and slags are unacceptable.
- Recycling of materials (like PVC) which contain pollutants is unacceptable.
- Co-incineration merely takes place in old industrial furnaces with low energetic efficiency and poor purification facilities of flue gases.

Finally, two remarks concerning the layout of the report:

- The layout of the tables is somewhat careless and inconsistent. This tends to hamper reading and comprehension.
- There are a number of discontinuities in the text.

In general, the layout gives the impression that the report has been written a little hastily.

2.2 Scope of the study

2.2.1 Comparison between quality of fossil fuels and Refuse Derived Fuel (RDF)

In the report very little attention is paid to the chemical specifications of the fossil fuels substituted by secondary fuels, which we feel is a crucial factor. Only table 20 on page 38 gives some information on this issue. In the table the concentrations of some heavy metals are given in mg/MJ for "regular fuel hard coal, average". No explanation is given to what this average refers to. An average for the coal consumed in a specific country, for example, or an average for coal produced in a specific country? No indication is given of the ranges between which the concentrations can vary for different types of hard

coal and no indication is given of concentrations in other potentially substituted fossil fuels.

Secondly, no comparison is made between the chemical specifications of hard coal given in table 20 and those of different types of secondary fuels, as for example presented in tables 1 through 6. The reader is thus given no direct indication of how the specifications of secondary fuels relate to those of coal. This should apparently be deducted from the different proposed or implemented limits for heavy metals, also given in table 20.

We have made such a comparison considering the two fossil fuels most likely to be substituted by secondary fuels. For this purpose we did not only use data given in the BZL report but also data from other sources available to us.

Table 1 Concentrations of pollutants in fossil fuels (mg/MJ)

	Hard coal					Soft coal	
	| ETH, Dutch e.i.a. |		| BZL	| AWG		| ETH,ENCI	
	minimum	maximum	"regular fuel hard coal average"	average	maximum	minimum	maximum
Arsenic (As)	0,1	0,7	0,4	1,6	4,1	0,2	0,6
Cadmium (Cd)	0,001	0,044	0,020	0,3	0,4	0,006	0,077
Chlorine (Cl)	2,0	41,3	2,0			15,6	176,2
Cobalt (Co)	0,2	0,6	0,2	0,3	0,4	0,2	1,9
Chromium (Cr)	0,6	2,0	0,7			0,6	1,8
Copper (Cu)	0,4	1,1	0,6	1,3	6,9	0,2	1,1
Fluorine (F)		4,3				n.a.	n.a.
Mercury (Hg)	4,0E-03	2,7E-02	4,0E-03	0,0	0,1	3,6E-03	2,6E-02
Manganese (Mn)	1,5	7,9				2,6	6,2
Molybde-num (Mo)	0,1						
Nickel (Ni)	0,4	1,1	0,7	5,0	17,5	0,4	1,9
Lead (Pb)	0,3	1,9	1,5	5,2	11,1	0,2	0,7
Sulphur (S)	228	353				227	1.795
Antimony (Sb)	0,03	0,20				0,02	0,51
Selenium (Se)	0,04	0,09		0,2	0,3	0,06	0,26
Tin (Sn)	0,04	0,08				0,20	
Tellurium (Te)	0,04			0,0	0,1		
Vanadium (V)	1,02	1,98	1,50	7,1	32,3	0,62	26,67
Zinc (Zn)	0,10	9,86	0,10	7,7	8,9		

Both tables only give an indication of the concentrations of pollutants in fossil fuels and secondary fuels. It is possible in practice that lower quality coal types than those mentioned in Table 1 are used, for example. Certainly secondary fuels other than those mentioned in table 2 are also used and certainly there will be RDF, for example, with deviating concentrations.

Comparing the concentrations presented for fossil fuels and secondary fuels shows that concentrations of pollutants even in RDF from domestic waste

can largely be compared to those in hard coal and soft coal. The concentration of volatile pollutants in secondary fuels from domestic waste can both be lower (As, Se), comparable (Te, Hg) or higher (Cd, Sb) than in hard coal and soft coal. The concentration of Cl is clearly higher in fuels from domestic waste. The high concentration of Cl on the other hand seems to improve the capture of Hg from flue gases, because of the formation of condensable Mercury Chloride ($HgCl_2$). The concentration of S is often considerably lower. However some potential secondary fuels not mentioned in Tabel 2 (e.g. residues from petrochemical industries, sewage sludge) have higher S concentrations.

Tabel 2 Concentrations of pollutants in secondary fuels (mg/MJ)

	Subcoal, RDF from domestic waste | Subcoal |	German RDF from domestic waste | AWG |	Separately Collected MPW | APME |	RDF from production specific industrial waste | BZL |	Mixed Fraction DSD | BZL |
Arsenic (As)	0,2	0,4	0,1	0,0	0,0
Cadmium (Cd)	0,1	0,4	1,0	0,0	2,3
Chlorine (Cl)	273,1		288,2		551,6
Cobalt (Co)	0,2	0,2	0,1	0,0	0,0
Chromium (Cr)	3,4	2,9	0,6	0,0	1,6
Copper (Cu)	11,2		2,3		7,0
Fluorine (F)	5,6				n.a.
Mercury (Hg)	3,0E-02	5,7E-02	5,9E-03	4,5E-04	3,3E-03
Manganese (Mn)	3,9			0,1	0,5
Molybde-num (Mo)					
Nickel (Ni)	1,2	0,9	0,4	0,0	0,3
Lead (Pb)	11,7	14,3	2,6	0,1	12,5
Sulphur (S)	125				23
Antimony (Sb)	0,69				0,68
Selenium (Se)	0,04	0,05			n.a.
Tin (Sn)	1,20		0,44	0,02	17,68
Tellurium (Te)	0,03	0,00			n.a.
Vanadium (V)	0,32	0,29		0,01	0,17
Zinc (Zn)		37,78	7,79		

From the tables it can be concluded that even secondary fuels produced from domestic waste can have a quality comparable to that of hard coal and soft coal. The term 'ecodumping' therefore cannot automatically apply to all secondary fuels.

2.2.2 Influence of co-incineration on other emissions than heavy metals

In the BZL-study, little attention is paid to other pollutants than heavy metals, and chlorine. Only concentrations of SO_2, NO_x, CO and (toxic) hydrocarbons in flue gases of waste incineration plants and some energy recovery plants are given (see table 7, 9, 12 and 18). However the influence of co-incineration of secondary fuels on these concentrations is ignored. This is a pity, since a wider sample of sources clearly show that co-incineration can have a reducing effect on the size of all of these emissions.

The potential influence of co-incineration on SO_2 emissions has already been discussed. Many secondary fuels contain less sulphur per MJ so that co-incineration results in reduced SO_2 emissions.

Industrial thermal processes can also contribute to the amelioration of climate change when co-incineration takes place with the secondary fuel containing carbon of biological origin. This is precisely why governments in several member states (amongst others the Dutch Government) support co-incineration of some types of secondary fuels (such as organic residues).

Co-incineration of secondary fuels with a high percentage of volatile components can have a reducing effect on the emissions of process related pollutants such as CO, toxic hydrocarbons and NO_x and also on toxic organic compounds (TOC) concentrations in ashes (see for example |APME|, |AWG|), especially when staged combustion is applied in order to reduce NO_x-emissions. Because of the higher percentage of volatile components, burn out of the fuel can be completed faster than with coal. With the higher percentage of volatiles, a higher percentage of fuel nitrogen is converted in the reducing zone of staged combustion systems, thereby reducing the percentage of fuel nitrogen oxidized into NO_x.

2.2.3 Quality of solid residues and products

In the BZL-study, differences between waste incineration plants (WIPs) and recovery plants in the quality of solid residues are completely ignored, as are the resulting differences in environmental impact.

In cement kilns, several types of coal fired power plants and in blast furnaces a one and a half to two times higher temperature is maintained. At these temperatures ashes sinter or even completely melt, transforming mineral matter into material with a glasslike structure. Heavy metals are bound in this glasslike structure and are virtually unavailable to leaching and dissolving. Only volatile metals that condense on the surface of particles during the cooling off of gases (flue dust in power stations and cement kilns) become available for leaching.

In WIP's this phenomena does not occur, or occurs only partially, leaving potentially all or most of the heavy metals present in the residues available for leaching and emission to soil. This is why in the Netherlands the flue ashes of WIP's have to be partially disposed of as toxic waste, while flue ashes from coal dust fired power stations and cement kilns are respectively applied as raw material for cement production and sold as a building material.

In other words, WIP's tend to produce more solid residues than several types of recovery plants because of the lower quality of the ashes. The application of ashes from WIP's gives higher emissions to the soil.

2.2.4 Input demands for fuel

All types of industrial kilns have specific input requirements for the fuel. Cement works do not allow too much Chlorine and Fluor in relation to the quality of the cement. They do not allow too high concentrations of Antimony because this causes skin problems, such as eczema, among workers who come into contact with this material (e.g. bricklayers and plasterers). Power plants in the Netherlands, further, do not allow too much heavy metals in the fuel in order to prevent high concentrations of heavy metals in the residues. When the concentration of heavy metals is too high, the residues must be put on an expensive dumping site. Fuel for limekilns must have a very low content of Chlorine to prevent the chemical reaction between Calcium and Chlorine. This means that, for example, the fuels mentioned in tables 3 and 4 will not be used in limekilns and cement works.

2.2.5 Consequences of a wider scope on basic assumptions and recommendations

In the foreword and introduction of the BZL report it is stated that diversion of waste from WIP's and hazardous WIP's for co-incineration in industrial furnaces structurally increases the environmental impact and should be referred to as 'ecodumping'.

In the light of the conclusions in the previous four subparagraphs, which entails a widening of the scope of the study, this basic assumption cannot be upheld. Secondary fuels can have a comparable quality or can even have lower concentrations of pollutants than fossil fuels and therefore can have a similar or lower environmental impact. A widening of the scope leads also to the conclusion that weighing of:

- Emissions of heavy metals and halides on one hand and
- Emissions of SO_2, CO_2 and process related pollutants and residue quality on the other hand

should also be part of the discussion concerning co-incineration of secondary fuels.

2.3 Other methodological aspects and disputable statements

2.3.1 Definitions

The definitions of recycling and recovery are not strictly in accordance with the EU Directive.

The main goal of waste disposal 'to destroy or eliminate the wastes' pollutant potential' as described on page 13, can be disputed. A broader description of the goal 'to minimise the environmental impact of waste' is more in accordance with the policy of the EU in waste legislation.

2.3.2 Undesired recycling of pollutant containing materials

Page 20 and 21 of the BZL report states that “recycling efforts should not be undertaken” for materials with high concentrations of pollutant, such as PVC. According to the BZL report the recycling of materials causes “increasing distribution” of those pollutants. These statements are not sufficiently backed up. The figure on page 21 suggests that recycling results in the diffuse dispersion of waste materials into the environment.

Such a phenomena is unknown to us. It is generally accepted that the collection of waste materials in the EU takes place with approximately 100% efficiency. Indeed it is widely accepted that recycling prevents the production of primary materials and additives and reduces related environmental impacts. It is for this reason that recycling is widely considered by industry, governments and environmentalists to be a major tool for reducing the environmental impact related to materials consumption. This fact is underlined in the foreword of the BZL report by Dr. Christian Hey.

2.3.3 Undesired application of solid residues as secondary building materials

According to the report the application of ashes as secondary construction materials by definition results in an unacceptable dispersion of toxic substances into the environment (see pages 19, 24, 28, 31). This statement is not backed up with sources, however, other than the assertion that large percentages of toxic substances in waste or secondary fuels end up in solid residues or products such as cement or lime.

Our view is that this statement is too general and insufficiently founded. No statement is made concerning which level of emissions to soil would be acceptable. Therefore a point of reference by which the statement can be interpreted is lacking. No quantitative information is given, further, concerning concentrations and available/leachable/dissolvable amounts of pollutants in ashes and slags. Neither is information given concerning the influence of co-incineration of secondary fuels on these parameters. Therefore it is unclear why the report makes the above-mentioned statement.

In addition, no opinion is given concerning the desirability of applying virtually inert residues, such as blast furnace slag. No statement is made, also, about the desirability of applying ashes and slags from industrial furnaces as secondary construction materials when only fossil fuels are used. It is unclear from the report whether this is acceptable. If so, would it be acceptable to apply similar ashes and slags from plants co-incinerating secondary fuels when co-incineration has no effect on the quality of these residues?

The fact that the application of ashes and slags is regulated in most member states by legislation is ignored by the report. This legislation generally considers leachability of pollutants, not concentrations. It allows for certain minor environmental impacts caused by small emissions to the soil. It is not clear whether the statement in the report means that BZL is in disagreement with this legislation. We feel that the report would be improved if this would be explained more clearly and backed up with references.

2.3.4 Co-incineration in old plants

According to the report, waste for co-incineration primarily “flows to the worst equipped or least energy-efficient” (page 24) industrial installations. “As a rule it is not the new, efficient plants but older, uneconomical ones threatened with closure that seek to ensure their survival by recovering waste”. No foundation is given for this statement. Again, we feel that the report would be improved if this statement would be explained more clearly and backed up with references.
Contrary to the statement in the BZL report, and according to an analysis of the potential processing capacity of Belgium cement kilns for Dutch wastes |Interduct| *both* modern, energy-efficient kilns (e.g. the Antoing kiln of CBR) and older kilns, cover a large percentage of their fuel requirement by using secondary fuels.

3 Specific comments

Page 4. Data in table 1 are in accordance with our data.

Page 6. Data in table 2 are in accordance with our data.

Page 7. The range of concentrations of substances in the several industrial wastes in table 3 is rather broad. It would be better to split the industries into some categories. The chlorine content of MSW is too high.

Page 8. The concentration of the substances is in accordance with our data. We miss a reference, however.

Page 11. The data in table 6 are in accordance with our data, only the concentration of Chlorine is too high according to our information.

Page 12. In the opinion of BZL the generally higher pollution levels of substitute fuels should be included in the overall assessment. We refer to the remarks made in subsection 2.2.1.

Page 13. In section 4.1 energy efficiency is mentioned of 50-70%. In our opinion it should be mentioned that this is thermal energy. Thermal energy is only applicable when it can be used at a close distance to the incineration plant.
As stated before, in our opinion the definition of waste disposal is too confined.

Page 14. The use of scientific notations instead of 0.0000000004 (as used in the report) would be preferable.

Page 16. We miss a reference for the transfer factors.

Page 18. Please check the units in table 9: Mg/Nm^3 is incorrect.

Page 20. Recycling of PVC is rejected. As mentioned above, we would disagree.

Page 21. The diagram on page 21 is not clear.

Page 24. In the table, data is given concerning cement works in Poland and in the U.S. These two works have high transfer factors to the air. When these two, non EU-members with low emission standards, are left out, the transfer factors will be much lower. We would question the use of two different methods for determining the transfer factors for VDZ. Further, some more information is needed to assess the remark in the last sentence of page 24.

Page 27. The transfer factors for dust firing are OK. For Dutch power plants, however, Chlorine and Fluor are too high.

Page 28. We would question why the data mentioned in table 16, are considered to be satisfactory in the BZL report, while the data in tables 13 and

15 are not. It appears that only the transfer factor for Mercury has been taken to be important.

Page 33. It is unclear why Black Pump has been left out.

Page 36. In the opinion of BZL contaminated wastes should be directed to disposal, and residues (or the waste itself) should be put into environmental sinks. We agree when it concerns waste with high concentrations of pollutants. We disagree when it concerns waste or residues with less or sufficiently immobilised pollutants. It should be noted that environmental sinks use a lot of space and must be monitored for many generations to come. Considering the lessons from history, one should accept the likelihood that part of the environmental sinks will be forgotten. Further, the greater the number of sinks, the more is likely to be forgotten. We therefore believe that an evaluation of the risks of environmental sinks would be in order.

Page 38. Table 20, the unit of Regular fuel, second column should be mg/MJ.

It would be preferable to use the same sequence of substances in all tables.

4 Final Remarks

We would like to take this opportunity to once again stress that it has not been our attention to deliberately undermine the BZL report, but rather to provide an objective and impartial assessment of the report's strengths and weaknesses.

The BZL report can be praised on a number of counts. In general the report can be seen as positive in the sense that it will intensify the discussion with regard to co-incineration of secondary waste derived fuels in industrial installations. This is positive insofar that it may help to bring about an earlier realisation and implementation of legislation concerning co-incineration. We would fully agree with the authors of the BZL study that the introduction of such legislation is urgently needed in order to prevent excessive damage to the environment by co-incineration.

We further value the thoroughness with which the authors have paid attention to the transfer factors of different types of industrial installations and waste incineration plants (WIP's). The large number of references in table 9 and 13 clearly shows that this aspect of the report has been considered carefully. This also applies to the wide range of considered types of industrial installations. In addition, the focus on Central European and Scandinavian countries also contributes to the relevancy of the study.

It has to be said, however, that the study would have made a better contribution to the discussion concerning co-incineration of secondary fuels if:
- the scope of the study had been sufficiently wide;
- key assertions had been sufficiently referenced and backed up.

We believe that, had the above been done, it would have lead to an adaptation of the BZL report's main conclusions and recommendations. In our view, the legislative recommendations in the BZL report miss the target. We believe that it is unfair and unbalanced to demand harmonization of emission limits with waste incineration plants for the entire industrial process, while only a relatively minor part of the fossil fuels is substituted with secondary fuels.

Having said this, we hope that this peer review will be taken in the positive spirit in which it has been written and we are looking forward to a constructive dialogue on this important issue.

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