FRAMEWORK SERVICES CONTRACT
ENTR/2008/006/LOT 1

IMPACT ASSESSMENT STUDY ON THE REVIEW OF THE GAS APPLIANCES DIRECTIVE 2009/142/EC

Final Report

prepared for
DG Enterprise & Industry

RPA

October 2012

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Impact Assessment Study on the Review of the Gas Appliances Directive 2009/142/EC

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prepared for

DG Enterprise & Industry, European Commission

by

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EXECUTIVE SUMMARY

Directive 2009/142/EC on Appliances burning Gaseous Fuels (GAD) sets out the basic requirements that domestic and commercial gas appliances must meet in the EU market. It came into force on 1 January 1996 with the purpose to ensure consistent operational performance and testing for gas appliances, particularly for those used domestically. The prime role of the GAD is to ensure the free movement of products covered by its scope, through technical harmonisation with regard to risks due to gas, while guaranteeing a high level of protection of public interest objectives.

The primary objective of this study is to support the European Commission to carry out an Impact Assessment, which will accompany the proposal concerning the revision of Directive 2009/142/EC on appliances burning gaseous fuels (GAD). As stated in the Specifications, the specific objectives of the study include examining the impacts of: 1) the alignment of the GAD to the New Legislative Framework (NLF); 2) the clarification of the GAD provisions; and 3) possible modification of the GAD scope which could also require modification of the essential requirements in order to ensure that all gas risks would remain covered. The possible modification of the scope of the GAD may consist of its extension to cover new product groups or functions of products, or its reduction or of a combination of both. In order to undertake this exercise it was necessary to identify problems associated with the GAD and any shortcomings in the existing provisions as well as consideration of their potential causes. This was then used as a basis for developing the policy options.

A review of available data as well as consultation with relevant stakeholders was initially undertaken to identify any safety risks or market failings (i.e. barriers to trade) that have arisen in relation to products currently included within the scope of the GAD and those that are not. It can be concluded that there is a general paucity of data regarding safety risks and barriers to trade, with no concrete evidence to suggest significant safety risks or market failings associated with products that currently lay outside the scope of the Directive. Thus, on the basis of the available evidence, there is little to no justification for bringing new products under the scope of the GAD.

The information collected as part of the above exercises was then used to assess the potential impacts (in line with the Commission's Impact Assessment Guidelines) of adopting various policy options. The initial options developed were as follows: ***Option 1****: Baseline (i.e. do nothing);* ***Option 2****: Alignment with the New Legislative Framework (NLF);* ***Option 3****: Alignment with the NLF and technical updating of provisions within the GAD;* ***Option 4****: Alignment with the NLF, technical updating and widening the scope of the GAD to include new products (appliances) fuelled by gaseous fuels for which concrete barriers to trade could be identified; and* ***Option 5****: Alignment with the NLF, technical updating and full harmonisation (in which the scope of the GAD is widened to cover not only gas using products, but also 'components' designed to be parts of end user installations.*

The assessment process initially involved identifying the impacts relevant to each policy option and the key stakeholders to be affected. This was followed by an initial assessment of the importance of these identified impacts based on their expected magnitude and likelihood of occurrence. Based on the previous tasks, an in-depth analysis of the most significant impacts, both positive and negative (compared to the baseline), has been undertaken, with

this involving quantification to the degree possible. It is important to note that this detailed analysis has only been undertaken for those policy options that are considered to address identified 'problems'. The desk research and consultation process undertaken indicates that minimal evidence exists (in terms of safety issues or barriers to trade) to support technically updating the GAD (in addition to the changes imposed through alignment with the NLF) or widening the Directive's scope. Therefore, an in-depth analysis of Options 4 and 5 has not been undertaken. This was also the case for Option 3; however, some potential (albeit small) benefits were identified during the initial assessment process, which have been highlighted. As alignment of the GAD with the NLF is a necessary requirement, Option 2 was taken forward for further in-depth assessment.

A number of changes to the existing Directive have been identified that would result from aligning the GAD with the NLF. One such change is the introduction of a requirement for the manufacturer (or authorised representative) to keep technical documentation and declaration of conformity for a period of 10 years after the product has been placed on the market. Similarly, economic operators would be required to present such information to any other economic operator for a period of 10 years after they have supplied or have been supplied with an appliance or fitting. This addition could result in potential costs, particularly to those organisations that currently keep documentation for less than 10 years. However, the adoption of this requirement should ensure that relevant documentation is retained, thus assisting surveillance authorities in efficiently tracing non-compliant products.

The procedure for dealing with appliances presenting a risk at national level currently outlined in the GAD will also be modified through alignment with the NLF. Although this is not considered to have a significant economic cost, the impact on the safety regime of the GAD will be minimal, as (apart from providing clarification) the changes are essentially semantic.

Another modification to the provisions of the GAD as a result of alignment with the NLF is the potential introduction of accredited in-house bodies (in addition to the comparatively more expensive third party notified bodies currently used) for undertaking product conformity assessment. For example, if it is assumed that accredited in-house bodies are used to assess 30% of new product lines, it has been estimated that manufacturers could save (collectively) between €1.8m and €32m. However, the use of accredited in-house bodies may provide manufacturers with a greater opportunity to influence conformity assessment activities, potentially resulting in an increase in non-conforming products entering the market and may lead to an increase in accidents and associated deaths and injuries. Should changes to the use of accredited in-house bodies only make a marginal difference to the number of fatalities then the benefits (cost savings) would outweigh the costs (slight increase in numbers of fatalities). It is important to note that there is no evidence to suggest that in-house certification would increase the risk of non-compliant products entering the market, particularly as these bodies must comply with the same standards as notified bodies. Furthermore, any savings made are negated by industry's strong preference for the wholly independent testing process that can only be achieved by using a third party notified body.

Alignment with the NLF may also lead to an alteration of the safety philosophy of the GAD. Currently, EC type-examination must be undertaken by assessment of the complete product. However, the revised version of the Directive could include a choice of type-examination process: 1) examination of the complete product (most stringent and costly option); 2)

examination of the technical documentation and critical parts of the product; and 3) examination of the technical documentation only (least stringent and costly option). It is estimated that under Scenario 2 (in which 70% of products are assessed using process 1), 10% using process 2) and 30% using process 3)) annual EU savings for manufacturers of between €3m and €100m compared to the current situation could potentially be experienced. However, examination of only the technical documentation may not be adequate in all situations to effectively determine conformity to type, potentially resulting in an increase in non-conforming products entering the market.

The possible introduction of more demanding market surveillance requirements is likely to further strengthen the safety regime of the GAD and the functioning of the internal market. However, only minimal changes such as training and development for staff to ensure they can competently carry out the current functions, such as use of RAPEX and ICSMS databases have been identified. Any further changes would have a negative impact, as Regulation 765/2008 already outlines the requirements for market surveillance. The annual EU cost to market surveillance authorities of updating the ICSMS database is estimated to range between €135,000 and €270,000, with the benefits gained from improved cooperation and communication considered to outweigh these negligible costs.

Aligning the GAD with the NLF will result in the introduction of obligations for importers and distributors, one of which is the requirement for importers to include their details on the appliance. This should improve product traceability, thus allowing market surveillance to be undertaken more efficiently. Another significant addition is the requirement for importers to undertake sample testing and ensure that conformity assessment has been carried out, which should assist with the reduction of non-conforming products entering the EU market. The introduction of these requirements is likely to result in potentially significant costs for importers and distributors (estimated to range between €4.6m and €15.8m). However, these costs would be outweighed should this obligation lead to a small reduction in the number of deaths and injuries, resulting in a net benefit. The potential costs for each organisation will depend on current practices, however, these could be significant, particularly for low-value products, and may lead to the exit of certain importers and distributors from the EU market.

It has also been suggested that there is a need for an additional point within essential requirement 1.2.1 requiring manufacturers to specify within the technical instructions (provided with an appliance) the method of assessing efficient and safe combustion at the time of commissioning and during maintenance. This addition is considered to ensure that products are effectively tested to affirm complete and safe combustion, thus reducing the risk of CO poisoning. This appears to be a positive step to reducing the number of deaths associated with CO exposure resulting from gas appliances and the costs associated with including this information within product instructions may well be outweighed by the benefits of one or more deaths avoided per year. Should the testing requirements be implemented by Member States either as a result of national requirements (as such issues fall under their competence) or by industry voluntary action, then it would be expected that there would be significant benefits through reduced numbers of CO poisoning fatalities. However, the costs of mandatory testing could be very significant and are likely to outweigh the benefits (in financial terms). Indeed, widespread take-up of CO alarms would be more cost-effective as they would guard against all sources of CO.

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GLOSSARY

ATEX	Explosive Atmospheres (hence ATEX Directive)
BED	Boiler Efficiency Directive
CEN	European Committee for Standardisation
CO	Carbon monoxide
CO_2	Carbon dioxide
CPD	Construction Products Directive
CPR	Construction Product Regulation
EA	European co-operation for Accreditation
EMC	Electromagnetic Compatibility Directive
ER	Essential Requirements (of GAD)
FSD	Flame supervision/surveillance/safety device
GAD	Directive 2009/142/EC on Appliances burning Gaseous Fuels
GPSD	General Product Safety Directive
ICSMS	Information and Communication System for Market Surveillance
LNG	Liquefied natural gas
LPG	Liquefied petroleum gases (usually propane and butane)
LVD	Low Voltage Directive
MD	Machinery Directive
MS	Member State
NB	Notified body
NLF	New Legislative Framework
OJ	Official Journal (of the European Union)
PED	Pressure Equipment Directive
RAPEX	EU rapid alert system for (non-food) dangerous products
SMEs	Small and medium sized enterprises
SWOT	Strengths, Weaknesses, Opportunities, and Threats
TFEU	Treaty on the Functioning of the European Union
WG GAD Rev	Working Group GAD Revision
WG-GA	GAD-MS Working Group (Gas Appliances)

1. INTRODUCTION

1.1 Background

Directive 2009/142/EC on Appliances burning Gaseous Fuels (GAD) is a codified version of repealed Directive 90/396/EEC and covers mainly common consumer and commercial products including a range of gas burning appliances that operate up to a normal temperature of 105 degrees Celsius and some fittings including safety, regulating and controlling devices and sub-assemblies.

The GAD sets out the basic requirements that domestic and commercial gas appliances must meet in the EU market. It came into force on 1 January 1996 with the purpose to ensure consistent operational performance and testing for gas appliances, particularly for those used domestically. All appliances falling under the scope of the GAD must carry the label of the CE mark. However there are exclusions from the Directive, including products for industrial use on industrial premises. Table 1.1 sets out the scope of the GAD as defined in Article 1.

Table 1.1: Definition of the Scope of the GAD

1. This Directive shall apply to appliances and fittings. Appliances specifically designed for use in industrial processes carried out on industrial premises shall be excluded from its scope.

2. For the purposes of this Directive the following definitions shall apply:

(a) 'appliances' means appliances burning gaseous fuels used for cooking, heating, hot water production, refrigeration, lighting or washing and having, where applicable, a normal water temperature not exceeding 105°C. Forced draught burners and heating bodies to be equipped with such burners shall also be considered as appliances;

(b) 'fittings' means safety devices, controlling devices or regulating devices and sub-assemblies, other than forced draught burners and heating bodies to be equipped with such burners, separately marketed for trade use and designed to be incorporated into an appliance burning gaseous fuel or assembled to constitute such an appliance;

(c) 'gaseous fuel' means any fuel which is in a gaseous state at a temperature of 15°C under a pressure of 1 bar.

3. For the purposes of this Directive, an appliance is said to be 'normally used' when it is:

(a) correctly installed and regularly serviced in accordance with the manufacturer's instructions;

(b) used with a normal variation in the gas quality and a normal fluctuation in the supply pressure; and

(c) used in accordance with its intended purpose or in a way which can be reasonably foreseen.

The prime role of the GAD is to ensure the free movement of products covered by its scope, through technical harmonisation with regard to risks due to gas, while guaranteeing a high level of protection of public interest objectives (as referred to in Article 114 paragraph 3 of the Treaty on the Functioning of the European Union (TFEU)).

The Directive does not provide an indication of how these requirements must be met, leaving flexibility to manufacturers with regard to the appropriate technical solution. Nonetheless, manufacturers of new products must meet certain protection

requirements such as type testing, compilation of a technical file, marking the product with a CE mark and implementing production quality control.

The aim of this contract is to assist the Commission to undertake an impact assessment relating to proposals to improve the functioning of the GAD. Although the ex-post evaluation of the GAD undertaken by the Consultants for the European Commission in 2010/11[1] found that the Directive has had a major positive impact on the internal market by improving operation and increasing cross-border trade, it is now understood that the scope of this study should pay particular attention to products currently outside the scope of the GAD.

1.2 Study Aims

The primary objective of this present study is to support the European Commission to carry out an Impact Assessment, which will accompany the proposal concerning the revision of Directive 2009/142/EC on appliances burning gaseous fuels (GAD).

As stated in the Specifications, the specific objectives of the study include examination of the impacts of:

- the alignment of the GAD to the New Legislative Framework (NLF);
- the clarification of GAD provisions; and
- a possible modification of the GAD scope which could also require modification of the essential requirements in order to ensure that all gas risks would remain covered. The possible modification of the scope of the GAD may consist of its extension to cover new product groups or functions of products, or its reduction or of a combination of both of the two measures.

At an early stage of the project, it was agreed that it was highly unlikely that the scope of GAD would be reduced (except to remove references to obsolete equipment or requirements). As such the aims were translated into policy options which could then be compared with the current baseline (Option 1).

1.3 Structure of Report

An overview of the market for gas appliances is presented in Section 2. Potential concerns relating to gas risks, market failures and the operation of the GAD are discussed in Sections 3, 4 and 5 respectively. The approach to the impact assessment is outlined in Section 6 with the policy options described in Section 7. Section 8 provides a detailed analysis of aligning GAD with the NLF and an overall summary is presented in Section 9.

[1] RPA (2011): **Ex-Post Evaluation of the Gas Appliances Directive**, report for DG Enterprise, dated March 2011 – hereafter referred to as the ***ex-post evaluation study/report.***

2. OVERVIEW OF GAS APPLIANCE SECTOR

2.1 Introduction

2.1.1 Main Product Categories

This section provides an overview of the gas appliances market in the EU. It focuses on products that form the major market segments and for which data are readily available. The information presented is mainly drawn from the earlier ***ex-post evaluation study*** of 2010/11 and it is worth noting that the data were validated (to a certain extent) during the associated country case studies undertaken. Since then, further studies have been published with particular reference to the *Gasqual* studies undertaken for CEN/AFNOR into issues associated with gas quality and appliances currently covered by GAD[2]. However, further inspection of these reports indicates a focus on statistics from 2007 for 16 EU Member States with a more limited range of appliances being considered. While it is acknowledged that there is some apparent divergence between the two sets of data, the data presented in the ***ex-post evaluation study*** remain valid and relevant.

Of greater difficulty is the collation of data on products that are currently outside the scope of the GAD. Until it is clear that there is an identified problem, as defined by the Commission's Impact Assessment Guidelines, for a particular product type or product group, it is not appropriate to spend significant resources collecting data on markets for products currently outside the scope of the GAD. This would detract from the resources available to assess impacts in more detail where problems are identified, particularly as a wide range of potential product groups has been identified by stakeholders.

2.1.2 Key Indicators

Essentially, the sales and stock of gas appliances are linked to the consumption of mains gas and LPG. For fixed appliances it is therefore useful to consider the number of households connected to mains gas and the consumption of LPG. For mobile appliances, the consumption of LPG is the key indicator.

Data on the number of domestic customers connected to gas mains are reported in the Competitiveness Study (2009)[3], which states that there were 97 million such customers in the EU25 (excluding Malta and Cyprus) in 2004. It is clear there are significant differences between Member States in terms of the absolute number of domestic customers with access to mains gas as well as in the proportion of overall number of households connected.

In addition, mobile appliances (and some fixed appliances) will be powered by LPG. However, only very limited data are available on the number of homes and businesses

[2] http://www.gasqual.eu/copy_of_documents-link

[3] Ecorys (2009): *Study on the Competitiveness of the Gas Appliances Sector*, available from the **Europa** Internet site, http://ec.europa.eu/enterprise/sectors/pressure-and-gas/files/study_competitiveness_eu_gas_appliances_final_en.pdf, accessed in January 2011

using LPG or LPG domestic and commercial (non-transport) consumption in individual Member States. For this reason, we have not been able to combine such data with the number of homes connected to the gas grid and, where we extrapolate national-level data onto the EU, this is based on the number of households with mains gas alone.

2.2 Central Heating Boilers

For the purpose of this study, the term 'gas boiler' is understood to refer to gas central heating boilers used for space heating in residential and commercial premises or for district heating plant that falls within the scope of the GAD. This also includes combination boilers (i.e. boilers used for both space and water heating). However, the stock and sales data presented in this section exclude boilers used for district heating.

The bulk of the data presented in this section has been sourced from the relevant Ecodesign studies (mainly VHK, 2007[4]) but data from other sources (Prodcom and Competitiveness Study 2009) have also been used for cross-checking the information from VHK (2007).

A summary of data for gas central heating boilers is given in Table 2.1 below.

Table 2.1: Gas Central Heating Boilers – Summary of Data (estimated for 2010)	
Stock (million units)	100
Lifespan (years)	23
Consumption (million units)	7.8
Cost of buy (€)	1,700
Installation cost (€)	1,600
Turnover (€ billion)	26

There is a large discrepancy between apparent consumption calculated on the basis of Prodcom data and the information presented in Table 2.1. Prodcom data suggest an apparent consumption of boilers running on all types of fuel which is significantly lower than that given above for gas boilers alone. Potential explanations for this include:

- Prodcom data may reflect the production (wholesale) value while data in VHK may be based on retail end-prices;
- Eurostat data may underestimate consumption in the EU[5]; and
- our estimates may be based on data which did not fully take into account the effects of the recent economic downturn (however, based on Prodcom data, the

[4] This refers to studies published within the framework of the Ecoboiler project; their full text can be found at http://www.ecoboiler.org

[5] Eurostat production+imports-exports calculations in some cases suggest a negative apparent consumption. In addition, apparent consumption in Germany appears to be too low (lower than in the Netherlands, which has three times fewer homes connected to gas mains).

decline in boiler apparent consumption between 2006 and 2009 was 22% and this alone cannot explain the discrepancy).

As regards the supply side the Competitiveness Study (2009) states that the European heating equipment market is dominated by five major suppliers which are based in Germany, the UK and Italy. These companies are said to have accounted for about 60% of the heating equipment market in 32 European countries (EU 27 Member States, two accession and three EFTA countries) in the mid-2000s.

2.3 Gas Fire/Heaters

This product category includes gas fires (fire places) and space heaters. Both gas fires (stoves) and space heaters can be either fixed or portable[6].

The bulk of the information presented in this section has been sourced from a study of the UK market conducted by Mansfield (2005)[7] which considers gas fires, room heaters and warm air units. UK specific data has been extrapolated out to the EU and average product costs have been estimated based on UK retail sales prices. The relevant data are summarised in Table 2.2 – although, as noted in the ***ex-post evaluation report***, there are significant uncertainties in these figures.

Table 2.2: Summary of Data for Gas Fires/Heaters (estimated for 2010)	
Stock (million units)	55 (domestic only)
Lifespan (years)	Up to 30 years (warm air units)
Consumption (million units)	4.8 (domestic fixed only)
Cost of buy (€)	€450 (fixed), €240 (mobile)
Installation cost (€)	€270 (fixed)
Turnover (€ billion)	€3.5 billion (fixed domestic only)

Some information on potential trends is provided by Mansfield (2005) which expects a gradual decline of the stock of mains gas fires and room heaters in the UK in the period between 2005 and 2020. A somewhat sharper decline was expected for the number of UK dwellings with warm air unit(s), which was expected to drop by 60% between 2005 and 2020. According to Mansfield (2005), and possibly referring to the UK only, "in contrast to the boiler market, there were a large number of manufacturers (around 60)."

6 For an example of mobile appliances see http://www.mobilegas.co.uk/mobileheater (accessed in November 2010.

7 Mansfield (2005): *Assessment of the size and composition of the UK gas appliance population*, available at the **National Archives** Internet site, http://webarchive.nationalarchives.gov.uk/tna/+/http://www.dti.gov.uk/files/file20973.pdf/, accessed in January 2011

2.4 Hot Water Heaters

For this study, gas-fired water heaters are defined as appliances used to heat water for purposes other than space heating. Therefore, combination boilers, while considered by some to be water heaters, are not included in this section but are addressed in Section 2.2.

The bulk of the data presented in this section have been sourced from the relevant Ecodesign studies elaborated by VHK (2007a)[8]. Data from other sources (Mansfield 2005, Competitiveness Study 2009 and Prodcom) have been used to cross-check the information reported by VHK. A summary of relevant data are given in Table 2.3.

Table 2.3: Summary of Data (estimated for 2010)	
Stock (million)	36 (domestic only)
Lifespan (years)	17
Consumption (million units)	2 (domestic only)
Cost of buy (€)	€730 (domestic storage), €390 (domestic instantaneous)
Installation cost (€)	€450 (domestic storage), €250 (domestic instantaneous)
Turnover (€ billion)	€1.4 billion (domestic only)

Some data on possible trends is provided by Mansfield (2005), which reports the number of gas water heaters in the UK; in 2005, there were 1.26 million water heaters (both instant and storage) but it was expected that this number would decline to 0.75 million in 2015 but then rise again to 1.02 million in 2020. VHK 2007a (which presents data for 2004) projected a decreasing market share of dedicated gas water heaters while overall water heater stock and annual sales (including heaters linked to the boiler and possibly district heating) were expected to increase between 2004 and 2010. This is also confirmed by BSRIA[9], which states that sales of gas water heaters were declining at the expense of combination boilers.

According to the Competitiveness Study (2009), the structure of the supply side in this sub-sector is similar to the heating sub-sector and most of the manufactures are active in both sub-sectors.

2.5 Gas Cookers/Ovens/BBQs

Gas-fired kitchen appliances include hobs (stove), which can be both fixed or mobile, ovens, ovens with grill and/or hob and BBQs/grills (again these can be both fixed or mobile). The bulk of the data on kitchen appliances have been sourced from the relevant Ecodesign reports which were published by BIO IS in 2010[10]. Additional

[8] All reports elaborated within the framework of the Eco-design of Water Heaters can be downloaded from http://www.ecohotwater.org

[9] BSRIA (2006): **World Heating Market**, available from the **BSRIA** Internet site, http://www.bsria.co.uk/news/2006/, accessed in November 2010

[10] All reports can be downloaded from http://www.ecocooking.org

information was sourced from Mansfield (2005) and Prodcom. A summary of the relevant data is given in Table 2.4.

Table 2.4: Summary of Data (estimated for 2010)	
Stock (million)	280
Lifespan (years)	19
Consumption (million)	15
Cost of buy (€)	€268-€2,000 (depending on appliance)
Installation cost (€)	€30 - around €400 (depending on appliance)
Turnover (€)	5.6 billion (4.8 billion excl. installation)

The estimate of the consumption of domestic gas cooking appliances in Table 2.4 of €4.8 billion (excluding installation costs) is significantly higher than that which can be calculated on the basis of the Prodcom data for 2009 (€620 million, down from €940 million in 2007). Potential explanations for this are similar to those given earlier for central heating boilers. As regards future trends, BIO IS (2010) expects a decline in the domestic gas oven stock from 70 million in 2008 to 62.8 million in 2020. On the other hand, BIO IS (2010) expects an increase in the stock of domestic gas hobs and grills from 190 million in 2007/8 to 216 million in 2020.

Annual sales to households of gas and mixed fuel[11] ovens (including those sold within cookers) are expected to decrease from 3.62 million units in 2010 to 3.3 million units in 2020 (BIO IS[12]). Potential explanations for this development given in BIO IS (2010) include the fact that the oven market in the EU15 is "fairly saturated" and that sales are shifting towards built-in ovens which are mainly electric. A particularly strong decline in sales has occurred in the UK since 1998 (both as a percentage of overall oven sales and as a number of units sold each year) where sales declined from 690,000 units per year in 1998 to 350,000 units in 2010 (however, according to BIO IS 2010, annual sales are set to increase again to 470,000 by 2020).

According to the Competitiveness Study (2009), traditionally gas kitchen appliances were very popular (due to energy and cooking efficiency) but recently introduced induction cookers appear to have similar advantages. While the Competitiveness Study (2009) expects gas appliances to "lose further importance in the sub sector domestic appliances", it is argued that the "market for gas cookers [...] will not disappear in the years to come". The main reasons for this are the wide availability of price-competitive gas cookers and bottlenecks in electricity delivery in some countries (in particular in southern Member States). On the other hand, annual sales of domestic gas hobs and grills are expected to increase from 10.7 million units in 2010 to 14.3 million units in 2020.

11 We assume that mixed fuel ovens/cookers include a gas oven.

12 These are estimates based on overall unit sales and their composition by fuel type given in BIO IS (2010), the source of which was market research conducted by GfK (the GfK Retail Panel). While BIO IS (2010) data do not include Cyprus, Malta and Luxembourg, adjusting for these countries on the basis of their population does not change the rounded figures.

According to BIO IS (2010), the oven market is dominated by a few companies. However, the Competitiveness Study (2009) makes a more general point that, in the new Member States, "numerous medium-sized manufacturers of domestic appliances exist" and which have a focus on their "regional client base".

2.6 Gas Refrigerators

These are fridges powered by gas, or by gas and electricity. Gas refrigerators appear to be marketed for applications where mains electricity is not available (or may be intermittent); it is therefore reasonable to assume that at such locations mains gas may not be available either (beach huts, summerhouses, mountain retreats, etc.) and that these appliances are most likely to be powered by LPG.

It is very difficult to differentiate between mobile and fixed gas fridges in the data; in fact the same product may be used in different ways – as a stationary fridge in a beach hut, or for vaccine storage, or as a mobile camping fridge (even relatively sizeable refrigerators can be marketed as mobile, possibly because they may be used in caravans or for camping[13]).

Due to the lack of appropriate product codes, data from Eurostat are not available and no studies relating to this market sector have been identified. No information on stock, lifespan, sales and turnover has been identified. A review of prices in online shops suggests that such appliances may range widely in price, from around €200 to around €1,800.

Internet searches identified one EU-based manufacturer of gas refrigerators. The Dometic Group (headquartered in Sweden) offers a wide range of portable cool boxes and refrigerators and includes the Waeco and Sibir brands.

2.7 Gas Lighting

This category includes gas-fuelled lighting equipment which can be either fixed (for nostalgic reasons some European cities still use gas streetlights) or mobile (gas lanterns are sold together with small LPG cylinders for outdoor/camping use).

For non-electric lighting, data on production, imports and exports are available from Prodcom. For gas street lighting, data on the current stock are given by ProGasLicht[14], a German NGO campaigning for the maintenance of gas lanterns. The relevant data are given in Table 2.5.

[13] Yatego (undated): **Dometic RML**, available from the **Yatego** Internet site, http://www.yatego.com/dauersparpreise/p,493510b14246b,431f0a37974cc4_3,dometic-rml-8555-l-k%C3%BChlschrank, accessed in November 2010

[14] ProGasLicht (undated): **ProGaslicht Europa**, available from the **ProGasLicht** Internet site, http://www.progaslicht.de/Gaslichtstadte/Europa/europa.html, accessed in January 2011

Table 2.5: Summary of Data for Gas/Non-Electric Lighting (estimated for 2010)	
Stock (million)	Unknown (camping); 70,000 (street lights)
Lifespan (years)	Unknown
Consumption (million)	Millions units (camping); unknown (fixed)
Cost of buy (€)	€10-75 (camping); unknown (fixed)
Installation cost (€)	€0 (camping); unknown (fixed)
Turnover (€ million)	260 (assumed same as in 2009)

While some municipalities have recently reinstalled gas lanterns (for example, Prague), in some German cities, there appears to be some pressure to reduce maintenance costs by replacing these with electric lighting.

Several European camping gas light brands have been identified (Campingaz, GoSystem) but it is unclear whether camping gas lights marketed under these brands are produced at European production locations.

2.8 Mobile Appliances

This product category includes the following appliances:

- mobile cookers/BBQ;
- mobile heaters (e.g. patio heaters, infrared tube heaters, etc.);
- mobile lighting (see previous sections); and
- mobile fridges (see previous sections).

These devices appears to be mainly used for outdoor leisure activities but other fields of application can be relevant as well; for example, gas heaters (including patio heaters) are used by private households, restaurants, pubs and bars.

The 'mobile appliances' product group appears to overlap with the information presented above for other sectors as data from the EuP studies and from Eurostat do not differentiate between appliances that are fixed and mobile. Therefore, it is likely that the data presented in previous sections for space and water heaters and cooking appliances already include mobile appliances.

2.9 Fittings

This category encompasses a large range of products. The following list of gas appliance fittings is given in the Competitiveness Study (2009): appliance governor, multifunctional control, solenoid valve, flame supervision device, burner control system, ball valve, gas cock, low pressure cut-off valve, gas tap, thermostat, safety overheat thermostat, flue thermostat, pressure sensing device and filter igniters.

For the following product NACE 2 categories, data are available from the Prodcom database (however, please note that both product codes include non-gas products as well):

- 25.21.13.00 Parts of boilers for central heating;
- 27.52.20.00 Iron or steel parts for iron or steel stoves, ranges, grates, cookers, barbecues, braziers, gas-rings, plate warmers and similar non-electric domestic appliances for gas, liquid or solid fuels.

No EU wide information on stock, lifespan, consumption, or costs is available. However, in 2009, the turnover in this sector appears to have been around €1.7 billion.

The Competitiveness Study (2009) notes that controls are complex devices and in particular smaller companies focus on specific sub-components (sensors, valves). Large controls manufacturers include Siemens (Germany), Honeywell (US but with R&D and production in the Netherlands), JohnsonControls (US but with subsidiaries in Germany) and SIT La Precisia (Italy).

2.10 Market Overview and Trends

2.10.1 Overall Size of the Market

The data collected on the markets for the main product categories of gas appliances are summarised in Table 2.6 (due to lack of disaggregated data, mobile and fixed appliances are considered together). It should be noted that the table does not provide data on products that are currently outside the scope of the GAD since no problems have been identified with respect to harmonisation of the EU market or due to safety issues (or other issues giving rise to concerns with regard to the goals of the Union).

The data in Table 2.6 suggest that the current EU stock of gas appliances is at least 470 million, annual sales are at least 30 million units and are sold and (in most cases) installed at a total cost of around €40 billion. When installation costs are excluded, the annual value is around €23 billion.

This compares with a value provided by the Competitiveness Study (2009) for the **production value** generated by the gas appliance manufacturing sector in 2007 of around €12 billion. This figure is based on the production value rather than the end-price (which is considered in Table 2.6) and does not take into account gas appliance exports and imports (see section 2.10.3).

The Competitiveness Study (2009) also provides useful data on the employment in the EU27 gas appliance manufacturing sector. For 2005, employment in the gas appliance manufacturing sector was estimated at 476,000 full time equivalents, corresponding to around 1.46% of the total manufacturing workforce.

Table 2.6: Summary of Data Collection						
Product category	**Stock (million)**	**Lifespan (years)**	**Sales (million)**	**Purchase Cost (€)**	**Install. cost (€) (1)**	**Value (€billion)**
Gas boilers	100	23	7.8	1,700	1,600	26
Gas fires/ space heaters	55[1.4]	30	4.8 [1,2,4]	240 [3] 450 [1]	270	3.5 [1.4]
Gas water heaters	36[1.4]	17	2 [1.4]	390, 730[1.6]	250, 450 [1.6]	1.4 [1.4]
Gas cookers/ ovens/BBQ	280	19	15	268 - 2,000	30 - 400	5.6
Gas refrigerators	-	-	-	200 - 1,800		Unknown
Gas lighting	0.07 (street lights)	-	Millions	10-75 [3]	-	0.26
Associated fittings	-	-	-	-	-	1.7
Notes: 1) Household use only, 2) Fixed appliances only, 3) Mobile appliances only, 4) Likely to be an underestimate, 5) Likely to be an overestimate, 6) Instantaneous heaters/storage heaters.						

2.10.2 Trends over Time

As discussed in the ***ex-post evaluation report***, the markets for most types of gas appliances are now considered to be mature, with numerous competitors and established market positions amongst the major manufacturing companies. For some product categories, they have largely become replacement markets (such as the boiler market in Germany, Belgium and the Netherlands).

However, it appears that there may be scope for market growth in those Member States where access to mains gas is set to increase in the future, and it is possible that there may also be some growth potential in relation to LPG-powered appliances. In this respect, it is of note that AEGPL (European LPG Association) estimates that annual domestic LPG consumption in the EU will increase from 12 million tonnes in 2001 to 19 million tonnes by 2030[15]. Generally speaking, products using natural gas and LPG are not competitors in the same market, as households using LPG are usually to be found in rural areas where natural gas is not available.

2.10.3 Trade

As discussed in the ***ex-post evaluation report***, China and Turkey have experienced a sharp increase in exports to the EU-27 area since 1999. China has focussed mainly on household appliances, whereas Turkey shows a greater variety in trade to the EU and has increased exports of space heaters, hot water and air conditioning products.

[15] AEGPL (2009): **The LPG Industry Roadmap**, available from the **AEGPL** Internet site, http://www.aegpl.eu/media/16783/the%20lpg%20industry%20roadmap,%20ed.%202009.pdf, accessed in November 2010

Exports from the other established and emerging economies to the EU-27 area are relatively low.

For central heating boilers, data given in VHK (2007) and sourced from Eurostat show a positive external trade balance. In 2004, EU25 producers exported central heating boilers to the value of €838 million while importing boilers worth €304 million. Eurostat data show that in 2009 imports of gas fires/heaters (excluding air heaters/hot air distributors) accounted for 17% of consumption by value and exports accounted for 10% of production by value.

Data for 2000, 2004 and 2005 on trade in hot water heaters are reported in VHK 2007a (though it is possible that these may be somewhat broader than just gas water heaters). These data show that the EU had a positive external trade balance and in 2005 exported products worth €113 million and imported products worth €47 million. The largest sources of imports into the EU were Switzerland and the United States, followed by Australia, Turkey and China which together accounted for almost 75% of the value of imported non-electric water heaters. The biggest export markets for EU products were Switzerland, United States, Russia, South Korea, and China, which accounted for approximately one-half of EU exports in this product category. Approximately 3.5% of EU exports were destined for Turkey.

Based on Prodcom data, in 2009, imports and exports of gas ovens/cookers to and from the EU27 were more or less equal in terms of the number of units. This contrasted with the preceding years, where the number of units exported was always significantly higher than the number imported.

For gas lighting, Prodcom data indicate that in 2009 the majority of the value of EU sales of non-electric lamps and fittings were imported from non-EU production locations. In 2009, the value of exports from the EU was €40 million while imports were €230 million.

In 2009, only 14% of boiler parts produced in the EU27 were exported and imports were significantly smaller than exports. External trade was more significant in the case of parts for non-electric domestic appliances, where almost 30% of EU production was exported and imports were almost as high as exports.

2.11 Proportion of Gas Used by GAD Products

In order to further understand the gas appliance market, calculation of the proportion of EU gas consumed by products included within the scope of the GAD has been undertaken. The purpose of this exercise is to provide an indication of the regulatory breadth of the Directive in terms of the products proportional use of natural gas. Although some data were also collated for LPG consumption, there were insufficient data to provide an analysis of comparable detail.

The initial stage of this exercise involved obtaining data on the total quantities of natural gas used in the EU by various sectors. Table 2.7 provides inland sales of natural gas by sector in Eurogas Member Countries and the EU-27 for the year 2010.

Inland deliveries represent deliveries of marketable gas to the inland market, including gas used by the gas industry for heating and operation of their equipment and including losses in distribution.

Table 2.7: Inland Sales of Natural Gas by Sector in Eurogas Member Countries and the EU27 (2010)

Country	Inland Sales of Natural Gas – Terawatt Hour Gross Calorific Value (TWh GCV)					
	Residential & Commercial	Industry	Power Plants	Transport	Other Uses	Total Inland Sales
Austria	28.0	34.8	35.8	0.1	3.3	102.0
Belgium	101.2	46.9	67.1	0	0	215.2
Bulgaria	1.3	15.1	10.4	0.5	0.4	27.7
Czech Republic	45.3	47.9	0	0.1	1.9	95.1
Denmark	11.9	8.8	9.1	0	14.8	44.7
Estonia	1.0	4.5	0.5	0.2	0.3	6.6
Finland	1.1	21.6	26.7	0	0.1	49.6
France	312.3	181.0	55.2	1.2	0	549.7
Germany	410.3	345.0	175.0	2.7	0	933.0
Greece	5.1	10.5	25.3	0.2	0	41.1
Hungary	61.6	17.4	36.2	0	11.4	126.6
Ireland	13.3	7.0	39.6	0.9	0	60.8
Italy	359.8	171.3	320.6	8.8	17.5	877.9
Latvia	3.8	3.0	12.1	0	0	18.9
Lithuania	3.3	11.1	17.3	0	0.3	32.0
Luxembourg	4.6	4.1	6.8	0	0	15.5
Netherlands	203.6	95.6	199.1	0	8.7	507.0
Poland	72.1	77.4	12.6	0	4.0	166.1
Portugal	8.3	13.6	22.5	0.2	7.1	51.6
Romania	40.3	67.7	32.9	0	6.0	146.8
Slovakia	24.5	14.6	11.8	0.1	8.4	59.4
Slovenia	3.5	6.3	0.6	0	0	10.5
Spain	63.5	200.2	135.6	0.8	0	400.1
Sweden	2.2	5.7	10.5	0.4	0	18.8
UK	478.2	191.4	395.6	0	27.9	1,093.2
EU27	**2,260.0**	**1,602.6**	**1,659.0**	**16.2**	**112.1**	**5,649.9**
Switzerland	22.4	11.0	3.0	0.2	1.8	38.5
Turkey	67.6	127.3	202.9	0	0	397.9

Source: http://www.eurogas.org/uploaded/Statistical%20Report%202011_091211.pdf
Note that: 1 TWh (GCV) = 92.3 million m^3 gas

Figure 2.1 outlines the proportion of inland sales of natural gas in 2010 attributed to each sector. This indicates that almost 40% of natural gas is used in the residential and commercial sector, 28% is used by industry, 29% in power plants, 0.3% for transport and the remaining 2% for other uses.

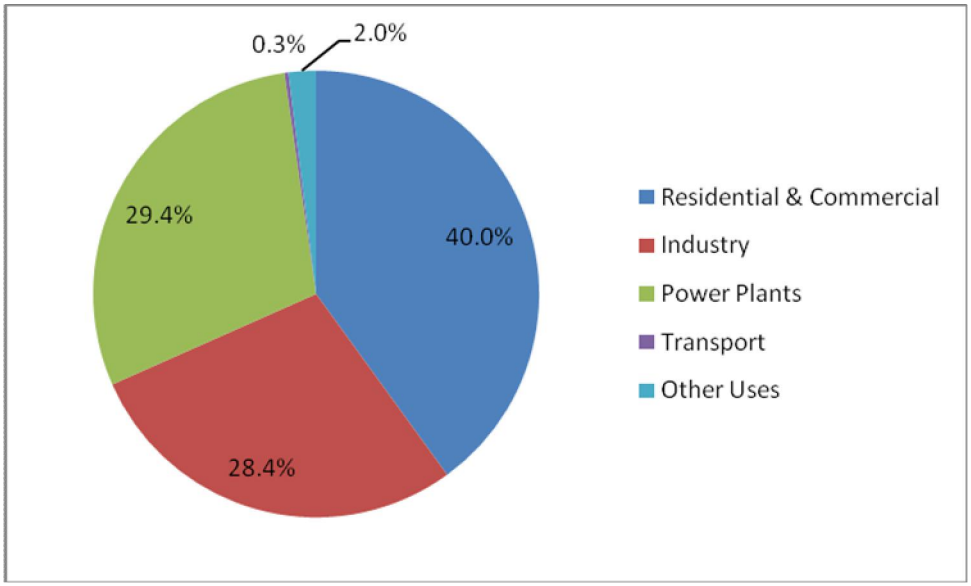

Figure 2.1: EU Natural Gas Sales by Sector in 2010

The next stage of the process involved calculating the proportion of natural gas used by those gas appliances included within the scope of the GAD. In order to undertake this task it has been necessary to collect information on the number (stock) of gas appliances used within the EU-27 and, where possible, the average consumption of gas for each appliance. It has not been possible to collect information on every gas appliance covered by the scope of the GAD, instead the focus has been on products that form the major market segments and for which data is readily available (cooking appliances, hot water heaters, central heating boilers and gas fires/space heaters) in order to provide an indication of the quantity of natural gas consumed by GAD products.

Table 2.8 outlines the data obtained regarding the number of products and average gas consumption associated with their use. These figures have been combined to provide an estimation of the total amount of gas used by each appliance type in the EU-27. It is important to note that the figures presented, in particular those relating to gas consumption, are assumptions. Therefore, the total consumption figures presented should be seen as indicative only rather than definitive values.

Table 2.8: Stock and Gas Consumption Estimates for Appliances covered by the GAD in the EU-27 in 2010

Type of Gas Appliance	Area of Use	Appliance Stock	Average Gas Consumption per Appliance (kWh)	Total Gas Used (1 TWh = 10^9 kWh)
Cooking Appliances				
Oven	Domestic	69,555,247[1]	183[2]	12.7
Combi-steamer	Commercial	79,760[1]	11,887[2]	0.9
Deck oven		36,522[1]	61,402[2]	2.2
Rack oven		47,761[1]	78,345[2]	3.7
Hob	Domestic	134,196,768[3]	330*[4]	44.3
	Commercial	200,000[3]	35,000[4]	7.0
Grill (radiant)	Domestic	57,514,541[3]	50**[4]	2.9
	Commercial	75,000[3]	12,500[4]	0.9
Hot Water Heater				
Hot water heater	Domestic	36,000,000[5]	1,000[5]	36.0
Central Heating Boilers				
Boiler	Domestic	100,000,000[6]	13,000[6]	1,300.0
Gas Fires/Heaters				
Fireplace	Domestic	55,000,000[7]	2,000[8]	110.0
Total		**452,705,599**		**1,520.8**

Notes:
**Assumes 438 annual uses on average (based on an average of 1.2 uses per day).*
***Assumes 52 annual uses on average (based on an average of 1 use per week).*
Sources:
[1] *BIO IS (2011): Preparatory Studies for Ecodesign Requirements of EuPs (III) – Lot 22 Domestic and Commercial Ovens (Electric, Gas, Microwave), including when Incorporated in Cookers. Task 2: Economic and Market Analysis. Available at http://www.ecocooking.org/lot22/open_docs/Lot22_Task2_Final.pdf.*
[2] *BIO IS (2011): Preparatory Studies for Ecodesign Requirements of EuPs (III) – Lot 22 Domestic and Commercial Ovens (Electric, Gas, Microwave), including when Incorporated in Cookers. Task 3: Consumer Behaviour and Local Infrastructure. Available at http://www.ecocooking.org/lot22/open_docs/Lot22_Task3_Final.pdf.*
[3] *BIO IS (2011): Preparatory Studies for Ecodesign Requirements of EuPs (III) – Lot 23 Domestic and Commercial Hobs and Grills included when Incorporated into Cookers. Task 2: Economic and Market Analysis. Available at http://www.ecocooking.org/lot23/open_docs/Lot23_Task2_Final.pdf.*
[4] *BIO IS (2011): Preparatory Studies for Ecodesign Requirements of EuPs (III) – Lot 23 Domestic and Commercial Hobs and Grills included when Incorporated into Cookers. Task 3: Consumer Behaviour and Local Infrastructure. Available at http://www.ecocooking.org/lot23/open_docs/Lot23_Task3_Final.pdf.*
[5] *Eco-design of Water Heaters. Reports available at http://www.ecohotwater.org/.*
[6] *Eco-design of Boilers and Combi-Boilers. Reports available at http://www.ecoboiler.org/.*
[7] *Mansfield (2005): Assessment of the size and composition of the UK gas appliance population available at the National Archives Internet site, http://webarchive.nationalarchives.gov.uk/tna/+/http://www.dti.gov.uk/files/file20973.pdf/.*
[8] *Metropolitan Utilities District (2010): Annual Operating Costs for Gas Appliances. Available at http://www.mudomaha.com/service/pdfs/gasappliancecosts.pdf.*

Table 2.8 indicates that the total gas use of the assessed appliances equates to approximately 1,500 TWh. This can be compared with the total inland sales data

(provided in Table 2.7) to provide an estimate of the proportion of natural gas consumed by appliances included within the scope of the GAD. Comparison of the two sets of values in Tables 2.7 and 2.8 indicates that two thirds of the EU-27 inland gas sales in 2010 associated with the residential and commercial sector can be attributed to the above four product categories. Considering that there are many other gas products included within the scope of the GAD that would fall within this sector, it could be assumed that greater than 80% of gas within the residential and commercial sector is potentially used by GAD products.

Even when considering the total inland sales of gas of 5,700 TWh in 2010, the amount attributed to the assessed appliances equates to approximately 27%. Accounting for the many other gas appliances covered by the GAD, it is not unreasonable to consider that the total proportion of gas consumed by GAD products could exceed 30%. This therefore indicates that a significant proportion of natural gas used within the EU-27 is attributable to products covered by the scope of the GAD.

3. POTENTIAL CONCERNS IN RELATION TO SAFETY RISKS

3.1 Introduction

As noted earlier, the key focus of the GAD is technical harmonisation with regard to risks due to gas, so as to ensure a high level of protection of the public. Thus, one of the aims of any revisions proposed to the current GAD should be to address gas related risks through further harmonisation of standards for gas appliances and their fittings, as well as for possible other products using gas as a fuel and which could benefit from being taken within the same regulatory framework.

In order to identify whether any such risks exist at present, the following activities have been undertaken:

- a review of the information collated during the ***ex post evaluation study*** has been undertaken;
- a review of all documents and discussions of the Working Group GAD Revision (WG GAD rev) and of the GAD-MS Working Group (WG-GA) since 2008;
- internet searches have been undertaken to identify any statistics regarding safety risks arising from gas appliances in or outside of the scope of the GAD. These searches have been undertaken in the following languages: English, French, Italian, Spanish, German, Polish, Hungarian and Czech;
- selected Competent Authorities have been contacted to ask if they have any data on safety concerns not previously identified or to check whether there are safety reasons underlying particular positions or actions at the national level;
- industry associations raising concerns over potential safety risks have been asked if they have any data as evidence of these risks. In particular, the focus here has been on determining whether there is evidence of potential risks for appliances lying outside the scope of the GAD; and
- analysis of the European Commission's public consultation responses and, where relevant, follow-up consultation to obtain specific evidence of safety concerns relating to gas products.

Unfortunately, despite an extensive search for accident statistics[16], we have found such data for only a handful of EU countries. As a result, it is not possible to be certain as to the precise level of risk associated with those gas appliances currently covered by the GAD and with those appliances that currently lie outside its scope. However, it is clear that the risks are very unlikely to be considered significant – as otherwise there would be some authorities demanding action with supporting evidence.

[16] This included raising the issue with Member States at the WG-GA meeting of 4 June 2012.

3.2 Evidence of Safety Risks from the Ex Post Evaluation

3.2.1 Member State Views from the Ex Post Evaluation

The ***ex-post evaluation study*** concluded that the available evidence indicates that the number of accidents related to gas appliances has reduced since the 1990s. The introduction of the GAD in 1995 has resulted in an improved quality of products, as standards are now harmonised and are subject to peer review by experts from other Member States (as opposed to previously when these were based on the views of national experts only). The exchange of information through different platforms at a European level has also supported this improvement in quality.

The ***ex-post evaluation study*** also found that the impacts of the GAD have varied across Member States, depending on the differences between the GAD requirements and those of the prior national legislation. Member States can be grouped into different categories based on the perceived impact of the GAD on health and safety, as shown in Table 3.1.

The Netherlands

Dutch consultees to the ***ex post evaluation study*** indicated that the introduction of the Directive had no positive impact on the number of accidents in the Dutch market; the number of fatalities has (on average) remained unchanged for the past 20 years. As the Dutch market is a mature market, incidents are now primarily associated with the improper installation of flueless devices which, prior to the implementation of the GAD, were banned from the Dutch market. It is of note that the Dutch Authorities have been amongst the most active in notifying products to RAPEX, with the majority of those notified between the period of 2005 to 2011 being flueless radiant heaters and outdoor / patio heaters and grills.

Table 3.1: Health and Safety Impacts of the GAD

Perceived impact	Previous legislation	Results	Countries
Improvement in health and safety standards	The national legislation in place prior to the GAD did not contain all the provisions of the GAD or was not fully enforced.	Improvement in the safety of appliances, reduced numbers of accidents, growing awareness of consumers.	Slovenia, Turkey, France
Unchanged health and safety standards	Provisions of the GAD in terms of health and safety are similar to previous national legislation	Number of accidents unchanged or decreasing, overall improvement of gas appliances safety.	Italy, Denmark, Germany, UK
Reduced safety standards	System in place prior to the adoption of the GAD was more stringent.	Gas appliance safety incidents could be caused by factors that were eliminated by the previous legislation.	Netherlands, Poland

Source: ***Ex-post evaluation report***

Dutch stakeholders did indicate, though, that the GAD has led to a dramatic improvement in the safety of LPG appliances. By way of example, in 1996, 100% of LPG cookers failed to comply with the essential requirements, while today 90-95% of such appliances do comply. Similarly, they note that the nature of non-compliance has changed: whereas previously there were technical problems with certain appliances such as cookers, at present technical deficiencies have disappeared and instead it is shortcomings related to poor translations of instructions, or insufficient warnings that are prominent.

Dutch consultees also noted that there may be a case for extension of the GAD to bring new products under its scope. The only example provided in this regard was blowtorches, which are currently not within its scope, but are widely used. However, it is of note that between 2005 and 2011, no such products were notified by the Netherlands to RAPEX. Further checking with the Dutch Authority has indicated that action was taken in response to one incident in which a user using a blow torch got burned. However, it is the Authority's view that this type of product not only fails to meet with the general requirements of the GAD but also those of EN521[17]. Furthermore, as they may be intended for professional users, they may not fall within the scope of the General Product Safety Directive.

Poland

The reduction in safety standards for Poland noted by consultees stems from the fact that Poland had a system of certification in place for over 50 years and that the technical criteria underlying certification prior to 2004 were more stringent in some aspects. In particular, CO concentration limits for gas cookers were lower, with a 500 ppm limit maximum allowed as opposed to the 1,000 ppm limit currently enforced through the EU standards. In addition, for natural gas appliances, concerns arise with regard to CO poisoning accidents caused by faulty ventilation and installation, especially for instantaneous water heaters. As standards for ventilation equipment do not require testing, safety devices that protect against CO poisoning are only tested for cases of blocked chimneys. Testing and supervision related to the back draft of the chimneys is also regulated and is a common concern in Poland, with this being an issue raised by the Notified Bodies with CEN.

Polish stakeholders have also noted that enforcement is an issue, with the import of products lacking the necessary testing and certification being an issue. Other factors are outside the scope of the GAD.

Broader Safety Concerns

More generally, the ***ex post evaluation*** concluded that most concerns over safety currently appear to relate to CO poisoning, which is now the leading cause of fatalities associated with gas appliances. This appears to be largely related to **matters outside the scope of the GAD**, such as changes in ventilation requirements (i.e. reductions in ventilation to improve energy efficiency) for buildings and increased

[17] **EN 521:2006 - Specifications for dedicated liquefied petroleum gas appliances - Portable vapour pressure liquefied petroleum gas appliance**

insulation. Although the GAD Essential Requirements contain provisions relating to combustion, consultees have suggested that emission limits for gas appliances could be tightened. For example, the GAD could specify combustion substances, such as CO and NOx, alongside appropriate limits so as to avoid different interpretations in test labs across Europe.

3.2.2 Other Potential Safety Concerns Raised by Stakeholders

The ***ex-post evaluation study*** also found that stakeholders had other safety concerns. These relate to the fact that some **products/fittings remain outside of the scope** of the current Directive thus are not subject to the same degree of rigorous testing for gas risks. For example, cookers have to be tested rigorously and conform to the GAD, a Directive specifically designed to obviate against gas risks. Whereas the hoses that connect gas cookers to the supply are covered by EN14800 under the CPD/CPR, a Directive that requires a product to meet performance characteristics which are determined with reference to the construction works as a whole. Stakeholders have claimed that there have been accidents associated with the use of these hoses and, as such, it appears that reliance on the CPD/CPR alone has failed to impose the necessary design and manufacturing standards needed to ensure safe use[18].

As noted by several respondents, due to the wide scope of the CPD/CPR, the tests imposed upon products may not be as stringent when compared to the GAD which regulates a specific risk. Similarly, some stakeholders commented that most accidents related to gas appliances can be associated with the use of flue ducts (as illustrated by the number of CO poisoning incidents), which are also regulated by the CPD/CPR. To redress this, the relevant measures under the CPD/CPR could be amended (and this is considered further in Section 6). However, it may be better to bring these products within the scope of the GAD. This argument is used by some stakeholders to support the view that not only is this Directive specifically designed to regulate gas risks, but it would also serve to ensure that one Directive, the GAD, has comprehensive coverage of the end-user gas installation.

Equipment that operates above 105^{o}C is also exempt from the scope of the GAD. Whilst boilers are likely to be captured by the Pressure Equipment Directive under CEN 14394+A1:2008[19], gas espresso machines that are prevalent in Italy are not covered by either the GAD, because of the temperature exclusion, or the PED because of the volume of operative water. Consequently, gas espresso machines are self-certified by manufacturers under the Machinery Directive. Some stakeholders expressed the view that the requirements of the Machinery Directive may not be as rigorous as, for example, the third party certification under GAD.

Additional products that were identified by stakeholders (during the ***ex-post evaluation***) for inclusion under the GAD for safety reasons include:

[18] However, subsequent discussions with stakeholders did not provide any further specific details.

[19] This covers heating boilers with forced draught boilers provided the nominal heath output does not exceed 10MW and the maximum operating temperature of between 100 and 110°C.

- blowtorches/blowlamps, which are currently not within the scope; and
- installation components, regulators and LPG hoses.

Follow-up discussions with stakeholders have produced no evidence that there are demonstrable safety issues for either of these sets of products (beyond the example from the Netherlands given above).

Finally, it has recently been suggested that the GAD should be extend to cover systems based on fuel cells, such as combined heat and power (CHP) systems, back-up power supplies, etc. For example, it has been suggested that the GAD should make reference to and take into consideration European standards dealing with safety aspects including:

- *FpeEN 62282-3-100 Fuel cell technologies – Part 3-100: Stationary fuel cell power systems safety* (dated February 2012) includes sections dealing specifically with gas safety; and

- *prEN 50465:2011 Gas appliances - Combined heat and power appliance of nominal heat input inferior or equal to 70 kW* which is under development and relates specifically to the testing of 'microCHP appliances'.

However, it is not clear what the justification is for including these under the GAD with respect to safety considerations. As noted in Section 4, there would appear to be no issues with regard to barriers to trade at this point in time, and we have not identified any safety issues which need to be addressed either.

3.3 Evidence from Examination of RAPEX and ICSMS Data

3.3.1 Evidence from RAPEX Data

The ***ex post evaluation*** provided a limited analysis of the data available on RAPEX, the EU rapid alert system for (non-food) dangerous products. The analysis has been expanded to provide more information on the types of safety risks that have been notified by Member State Authorities, as non-compliant products that are illegally being placed on the market. Over the period from 2005 to April 2012, 53 notifications were made by Member States to RAPEX.

The types of products covered by these notifications include:

- gas boilers;
- gas barbeques and camping stoves;
- gas cooking hobs, ovens and grills (cookers);
- gas refrigerators;
- gas fires;
- gas heaters;
- heaters for outdoor use and patio heaters;
- camping lamps;

- low pressure gas regulators for gas appliances; and
- gas canisters.

Figure 3.1 provides an indication of the number of notifications by appliance type. As can be seen, most notifications were associated with cookers and outdoor heaters. This suggests that surveillance is identifying products that do not comply with the requirements of the Directive are being placed on the EU market. However, it also highlights the fact that safety risks are being identified by Authorities from products, in this case components, that are outside the scope of the GAD.

For example, there have been two notifications to do with low pressure gas regulators, which may have been components rather than fittings incorporated into an appliance (although it is not possible to tell from the RAPEX notifications).

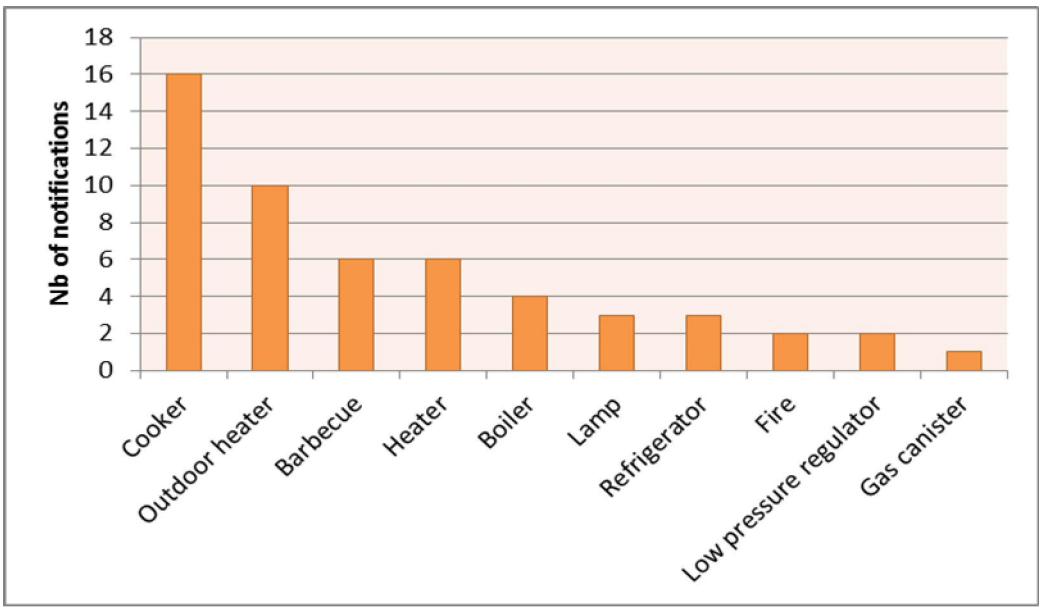

Figure 3.1: Notifications by Type of Product

Most of the actions taken by the notifying countries were either a sales ban and withdrawal from the market (including recalls from consumers) or facilitation of a voluntary withdrawal from the market together with a recall from consumers. Figure 3.2 provides information by accident/incident type where incidents occurred prior to the product being withdrawn from the market.

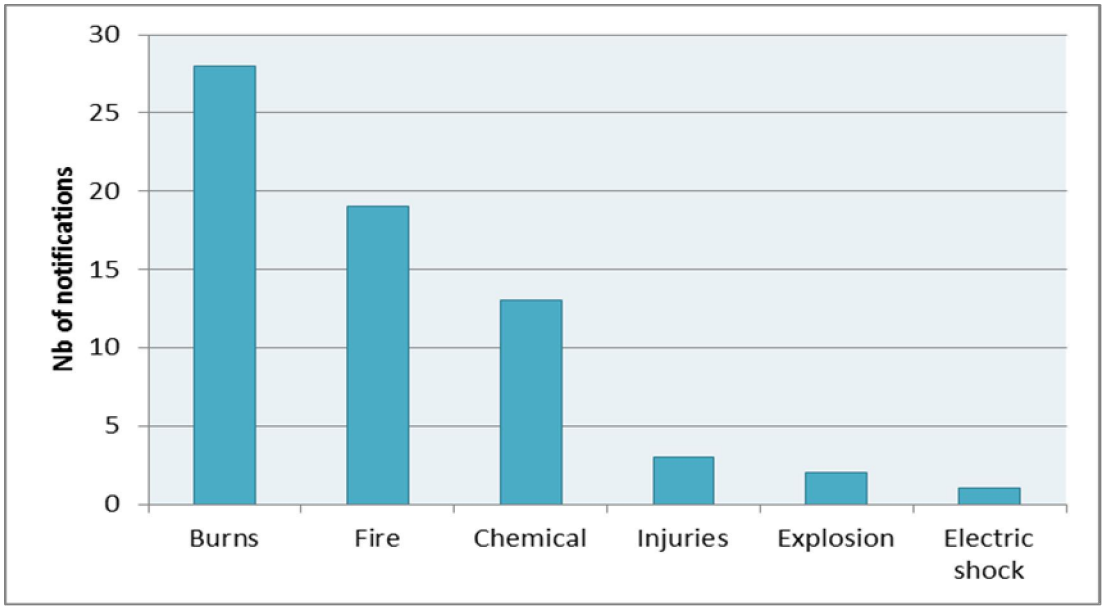

Figure 3.2: Notifications by Type of Hazard

As can be seen from Figure 3.2, most reported incidents related to burns (with more than one incident being recorded against a given appliance in some cases), with fires and chemical related hazards then next most common types of hazards. In some cases, more than one type of hazard was included in the notification, for example, burns and fire or chemicals, etc.

We also carried out a further review of RAPEX to identify whether there have been any notifications of gas-using products currently outside the scope of the GAD. This included searching RAPEX for notifications against the following product types:

- blow torches / blow lamps (using "blow");
- cartridge;
- hoses;
- regulator;
- valves;
- torches;
- cutter;
- stripper;
- diffuser;
- gasket;
- weed; and
- welder.

The searches did not identify additional products beyond those already identified for this study. Indeed, all the additional notifications (beyond the low pressure gas regulators mentioned above) related to appliances and fittings covered by GAD:

- three such cases applied to pipes;
- one to a valve associated with an oven;
- two to regulators associated with an oven and a portable gas heater; and
- two to the dangerous design of a hose.

3.3.2 Evidence from ICSMS Data

Overview

It is the role of market surveillance authorities to ensure that products moving throughout the EU market comply with the appropriate safety requirements. However, in the absence of a coherent means by which surveillance authorities throughout Europe can exchange information, it is possible for an identified unsafe product to be withdrawn from the market in one country and placed on sale in another country for a considerable time. This is because the transfer of information between market surveillance authorities is long, slow and bureaucratic. Moreover, the lack of communication results in the duplication of testing by surveillance bodies, which is both expensive and a waste of time.

The ICSMS seeks to redress this shortcoming by creating a network that provides current information on the actions undertaken by market surveillance bodies. More than a database, it seeks to assist with cooperation between market surveillance authorities and inform the public about unsafe products and voluntary manufacture product recalls. Thus it consists of a closed and a public area which are accessible in the full range of EU languages[20].

The closed section is to enable communication between market surveillance authorities, customs authorities and the European Commission. It contains confidential product information, test results etc. Furthermore, evaluation tools allow the comparison of testing methods to promote a uniform quality standard amongst authorities. This is likely to be heightened by the crosslinking of ICSMS with 'Enhancing Market Surveillance through best practice' (EMARS), a project which seeks to establish best practice techniques and the cross-sharing of information and expertise in market surveillance.

The public section of the ICSMS contains a vast range of product information which includes the official results of testing (positive and negative) as well as the restrictive sanctions imposed and the justification for these measures. Importantly, it also allows for the input of GTIN (EAN) code / barcode, serial numbers, multiple pictures, the manufacturer/authorised representative details and importer(s) details as well as where it has been distributed, which will help to identify and track future movements of the unsafe product. By networking this information and the market surveillance authorities via the internet, it is hoped that duplication of work will cease and unsafe products will be removed from the market immediately. Additionally, in accordance with the General Product Safety Directive, the ICSMS will serve as means for consumers to complain and raise awareness of potentially unsafe products.

[20] This can be accessed via www.icsms.org/.

ICSMS is to combine with RAPEX so as to enable RAPEX information to be fed directly into the ICSMS system and be distributed amongst its network of authorities. Although only 12 market surveillance authorities[21] are using ICSMS, because of the crosslink with RAPEX, a search for unsafe products may still reveal those items within RAPEX that have been identified by other Member States.

The ICSMS covers over twenty Directives including the GAD, MD, PED, LVD, EMC and CPD/CPR.

Incidents involving Gas-related Products

The search for defective gas-related products and fittings typically revealed fewer results under the ICSMS than for the corresponding searches under RAPEX. This proved the case for a general search under the heading "gas" and for many of the specific searches such as "stove" and "heater". However, the searches did reveal gas appliances and fittings that were not within the RAPEX database. The final results are summarised in Table 3.2 below:

Table 3.2: Database Search of Gas Related Products

Database	Number of Relevant Product Notifications
RAPEX only	39
ICSMS only	13
RAPEX &ICSMS	16
RAPEX and/or ICSMS	**68**

Two cases from ICSMS, although isolated incidents, are of particular interest. The first concerned an absorption refrigerator which was found to be unsafe (Exquisit FA50G – date notified 16/02/2012) because it did not match the associated device of type examination. The second gas appliance of interest was a faulty gas hob (HGA1K, HGA2k – date notified 09/10/2009). This was recalled by the manufacturer because the glands were not considered to be safe for use in the German market, having been designed to connect the gas appliance to the Italian gas supply. However, these appear to be two isolated incidents rather than a specific problem associated with these types of appliance or the functioning of the GAD.

[21] Austria, Belgium, Cyprus, Estonia, Germany, Luxembourg, Malta, Netherlands, Slovenia, Sweden, Switzerland, and the UK.

3.4 Evidence from National Accident Data

3.4.1 Belgian Accident Data

Data was collected from a range of sources on domestic gas explosions related to a pipe, valve or material failure since 2010. These are reported in Table 3.3 below. As can be seen from this table, most of the accidents were related to gas leaks, with only three of the explosions linked to boiler failure. No further details were available from the various sources to enable us to identify whether any of the accidents stemmed from, for example, failures in components rather than the appliances.

Table 3.3: Domestic Gas Explosions in Belgium since 2010

Date	Location	Casualties	Comments	Sources*
16/02/12	Woluwe-Saint-Pierre (Brussels)	None	Gas leak	(3)
5/02/12	Courcelles (Charleroi)	1 wounded	Gas leak	(13)
18/12/11	Léglise (Luxembourg)	None	Gas leak	(15)
20/10/11	Ath (Tournai)	2 wounded	Boiler explosion during repairing	(19)
4/10/11	Linter (Flemish Brabant)	2 wounded	Gas bottle explosion	(10)
25/09/11	Brussels	3 dead and 17 wounded	Gas leak	(17)
23/08/11	Brussels	1 wounded	Gas leak	(14)
31/07/11	Neufchateau (Luxembourg)	6 wounded	Gas tank explosion	(8) (9)
15/07/11	Liege (rue du Champay)	1 wounded	Gas leak	(11)
4/04/11	Boussu (Mons)	4 wounded	Boiler failure	(7)
1/04/11	Faimes (Liege)	3 wounded	Boiler failure	(5)
14/01/11	Blandain (Tournai)	1 wounded	Gas bottle	(6)
23/06/10	Soumagne (Liege)	3 dead	Gas leak in a propane tank	(4)
27/01/10	Liege (rue Leopold)	13 dead and 21 wounded	Gas leak	(1) (2)

** See Section 10.2 for sources*

3.4.2 Danish Accident Data

On average there are about 15-20 accidents per year related to the use and installation of gas appliances (see Figure 3.3). According to statistics from the Ministry, the number of gas accidents in 2009 was the lowest since 1992, equating to 1.8 accidents per 100,000 consumers. The trend is away from fatal incidents and, during the past five years, the number of incidents resulting in injuries has dropped from 125% in 2005 to approx. 67% in 2009 (against a base year of 1992). The largest number of accidents was related to the use of natural gas fuelled appliances[22].

[22] Danish Safety Technology Authority

The Safety Technology Authority conducted an assessment in 2009 regarding the safety of natural gas installations. The analysis had found that lack of ventilation and CO poisoning are the main safety risks. It also pointed out that new installations come with increased safety measures, existing installations carry typical product related errors and that some faults are a direct consequence of the lack of maintenance. Within the assessment different approaches to reduce the number of gas related accidents were discussed, including establishing new requirements or rethinking regulatory models.

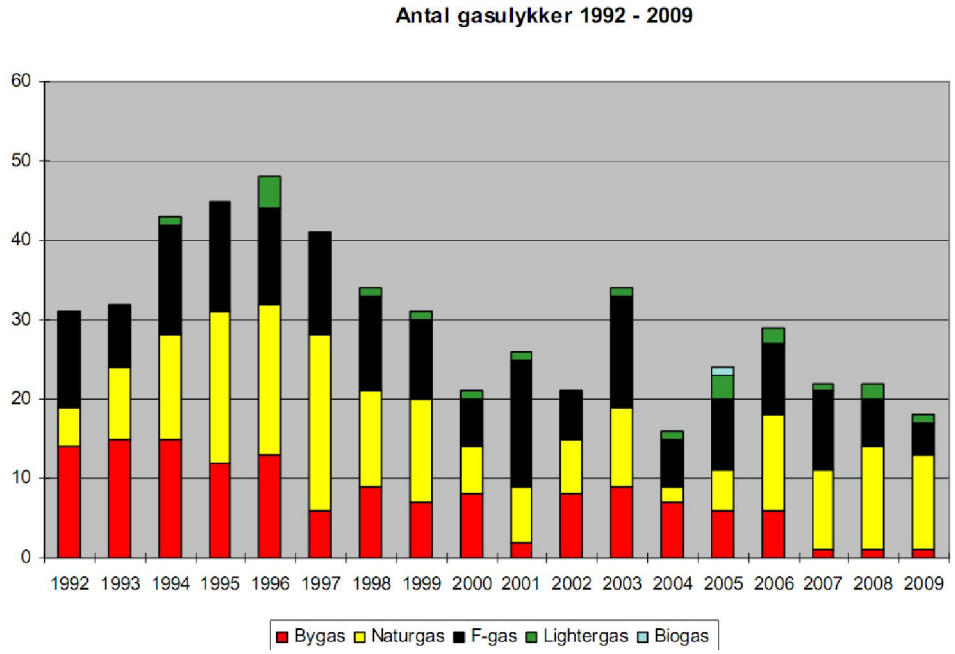

Figure 3.3: Number of Gas Accidents in Denmark
Source: Danish Safety Technology Authority

There are no general legislative requirements for annual inspection of gas appliances in Denmark; however, certain appliances, such as draught burners and flueless boilers, are subject to inspection every other year. The gas company responsible for the installation provides an annual inspection which covers approximately 1% of all appliances, the charge for which is included in the gas bill.

3.4.3 Estonian Accident Data

The Technical Surveillance Authority[23] (2011) reports that there were 253 gas-related calls to the Rescue Board, 30% of which involved liquefied gas cylinders, with the rest involving central gas or other reasons. The main problems identified during the supervision of gas installations were the absence of a supervisor or inadequate documentation, with this including the absence of the CE conformity marking and of the declaration of conformity.

[23] Estonian Technical Surveillance Authority Yearbook 2011.

Most of the problems with gas appliances are clearly related to installation. However, a campaign related to gas grills found that there were shortcomings in gas grills on sale in 18 of the 29 stores checked (and out of 69 grills that were inspected). The most common flaws were user-orientated risk warnings in Estonian and the absence of user and maintenance instructions, although the absences of the CE conformity marking and of manufacturer's mark were also an issue. Technical shortcomings or faults that would lead to dangers were not identified.

3.4.4 French Accident Data

Data provided by French Authorities indicates that there are around 11 million gas installations of various types in place in France. Internet searches enabled collection of information on nineteen domestic gas explosions in France since 2011. These are summarised in Table 3.4 below. As for Belgium, most of these explosions are related to gas leaks, although two are linked to boiler failures.

Table 3.4: Domestic Gas Explosions in France Since 2011

Date	Location	Casualties	Comments	Sources*
18/02/12	Moëlan-sur-Mer (29)	1 dead	Boiler failure	(11)
27/01/12	Vannes (56)	1 wounded	-	(12)
16/12/11	Colombes (92)	1 wounded	-	(14)
29/10/11	Grenoble (38)	1 dead	Gas tap inadvertently left open	(2)
16/09/11	Dijon (21)	-	Gas leak	(17)
28/09/11	Le Havre (76)	1 wounded	Gas leak	(22)
26/08/11	La Seyne (84)	1 dead	-	(21)
23/08/11	Locunolé (29)	1 wounded	Gas bottle explosion	(10)
23/08/11	Aramits (64)	2 dead	Gas leak	(18)
19/8/11	Moustoir-Ac (56)	1 dead and 1 wounded	Gas leak	(6)
08/08/11	Chambéry (73)	2 wounded	Gas pipes badly jointed	(13)
06/06/11	Châtres (10)	1 wounded	Gas leak	(20)
7/05/11	Aubergenville (78)	2 dead and 11 wounded	Gas bottle explosion	(1)
26/03/11	Paris (75)	8 wounded	Gas leak in a cellar	(9)
22/2/11	Saint-Jean d'Angely (17)	3 dead and 2 wounded	Gas leak due to pipe corrosion	(7) (8)
18/02/11	Saint- Lô (50)	1 wounded	-	(24)
4/02/11	Sceaux (92)	10 wounded	Gas tap inadvertently left open	(3)
27/01/11	Hasparren (64)	2 wounded	Heating system failure	(4)
26/01/11	Carcassonne (11)	2 wounded	Gas leak	(15)

** See Section 10.2 for sources*

Summary statistics provided by French Authorities indicates that there were 61 and 56 incidents in 2010 and 2011 respectively, resulting in fatalities and injuries associated

with the domestic utilisation of gas. A further five incidents in 2010 and 15 incidents in 2011 were associated with the distribution of gas.

In 2011, 38 of the 56 events were caused by a defect in the gas equipment or gas appliance, with these events leading to 15 fatalities and 186 injuries. In 2010, 39 events were related to defects in gas equipment or a gas appliance, with both the number and proportion therefore being consistent over the two years. The French Authorities use these data to justify their call for an extension of the scope of the Directive to include gas-related components (i.e. gas equipment which is currently outside an appliance) to ensure that the same safety requirements apply.

3.4.5 German Accident Data

A study carried out by the Paul Scherrer Institut[24] in 2005 on natural gas accidents risks for the Swiss government used German data on fatal accidents associated with 'consumer installations', as part of a broader comparative assessment of gas-specific risks. This study considered accidents involving natural gas in Germany for the period 1981 to 2002. It is based on the results of an extensive survey carried out by the Deutsche Vereinigung des Gas-und Wasserfaches (DVGW), which include the numbers of accidents, fatalities and injured persons for the period 1981 – 2002, by types of accidents.

These data were considered by the PSI to meet the following criteria:

- sufficiently large amount of accident records, which enable a valid and coherent analysis;
- the data should be broadly representative of the situation for Central Europe, or EU15;
- the data provide coverage of severe and smaller accidents with regard to completeness of records; and
- different damage indicators, i.e. fatalities and injured persons, are covered to the same level of detail.

Unfortunately, certain types of accidents were excluded from the analysis: accidents involving town gas, accidents involving LPG, and accidents involving an unspecified gas type.

As the GAD did not come into force until 1995, and will not have had its full effect until later in time, only part of the data is of relevance to this study. Figures 3.4 to 3.6 present the data of relevance to this study, with these figures providing an indication of the trends in numbers of different types of accidents and fatalities from 1985 to 2002. The study also provides information on injuries, but not disaggregated by year. As a result, it is not possible to determine what proportion of such injuries occurred in the period after which the GAD was introduced. For this reason, similar graphs are not provided here for injuries.

[24] Paul Scherrer Institut (2005): **Comparative Assessment of Natural Gas Accident Risks**, report for the Swiss authorities (SVGW), dated January 2005.

Unfortunately, it is not possible to be more specific as to what some of the headings for accident causes relate to; i.e. from the information presented in the report, it is not possible to determine whether technical defects are defects of the gas appliances or of the associated components. As a result, it is not possible to say with certainty whether the causes of the defects fall within the scope of the GAD. Furthermore, in Figure 3.6 which provides information on fatalities associated with different installation types, it is not possible to determine whether the "pipes, pipe joints and valves" identified as the causes of the accident would be considered "fittings" under GAD.

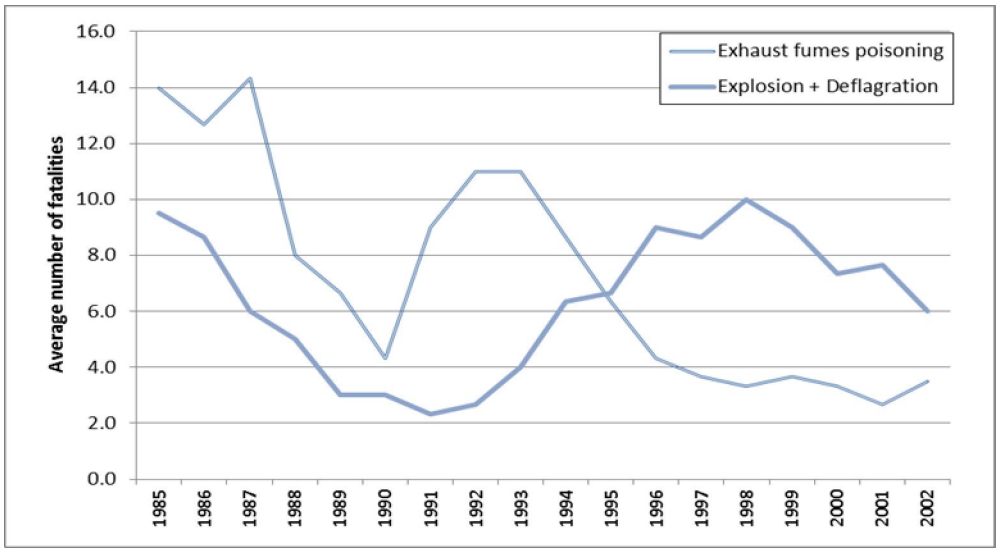

Figure 3.4: Fatality by Accident Type

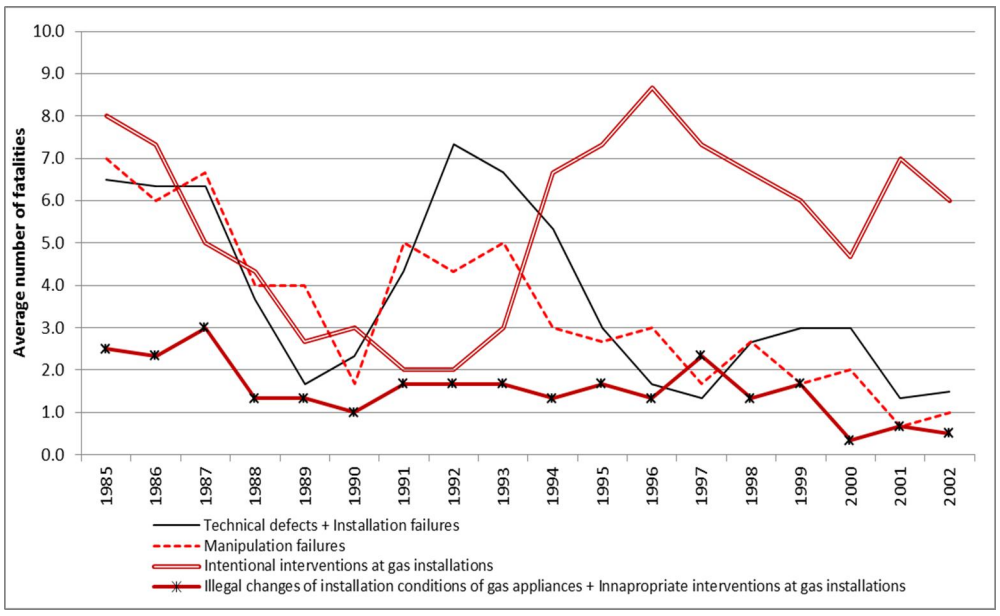

Figure 3.5: Fatalities by Accident Cause

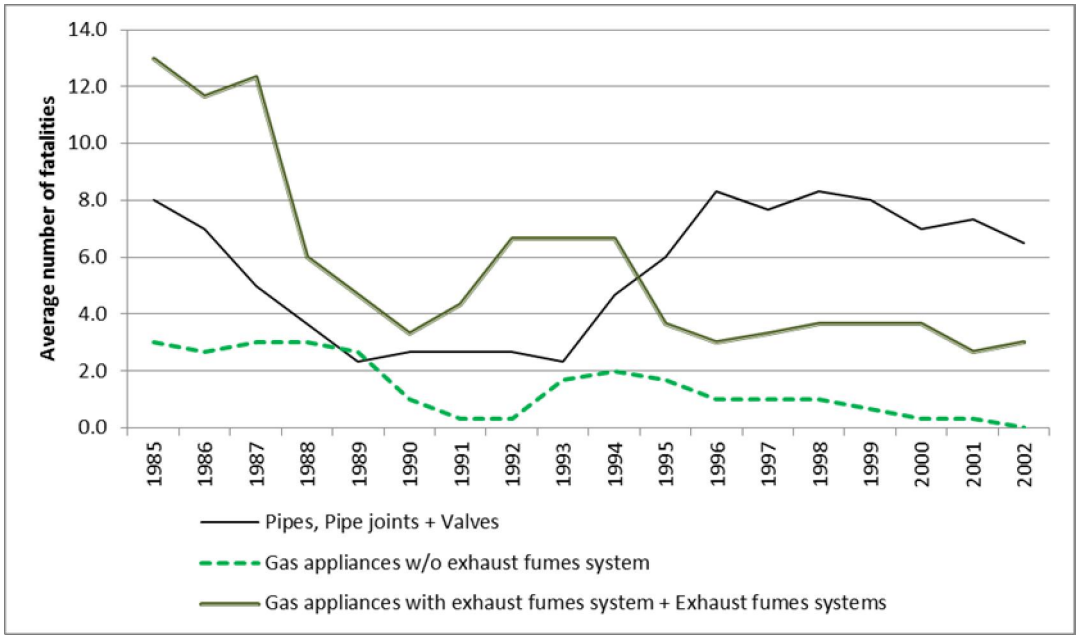

Figure 3.6: Fatalities by Installation Type

The German data show different trends over time and by type of accident. As can be seen from these figures, since 1997, there has been a downward trend in explosions and deflagrations, although prior to this period there was an increasing trend in such accidents. With respect to the causes of accidents, technical defects and installation failures would appear to be a decreasing cause, as would manipulation failures, particularly after 1999. Intentional interventions at gas installations remain a significant concern, with no significant downward trend, while illegal changes of installation conditions and inappropriate interventions would appear to be decreasing from 1998. Across installation types, the number of fatalities associated with "pipes, pipe joints and valves" has shown little change over the period, with this ranging between 5 and 10 per annum. In contrast, the numbers of fatalities associated with gas appliances with exhaust fume systems and without such systems show a decreasing trend in the number of fatalities per annum, with the number of total fatalities per year reduced from being over 10 to no more than 5 after 1995.

Figure 3.7 provides an overview of failure rates for the period from 1981 to 2002 for consumer installations, with this providing data for both injuries and fatalities by million customers. As can be seen from these data, there is a clear downward trend across all accident types.

Unfortunately, we have not been able to find any comparable German data for other product types so it is not possible to compare these findings with the safety risks for other gas appliances.

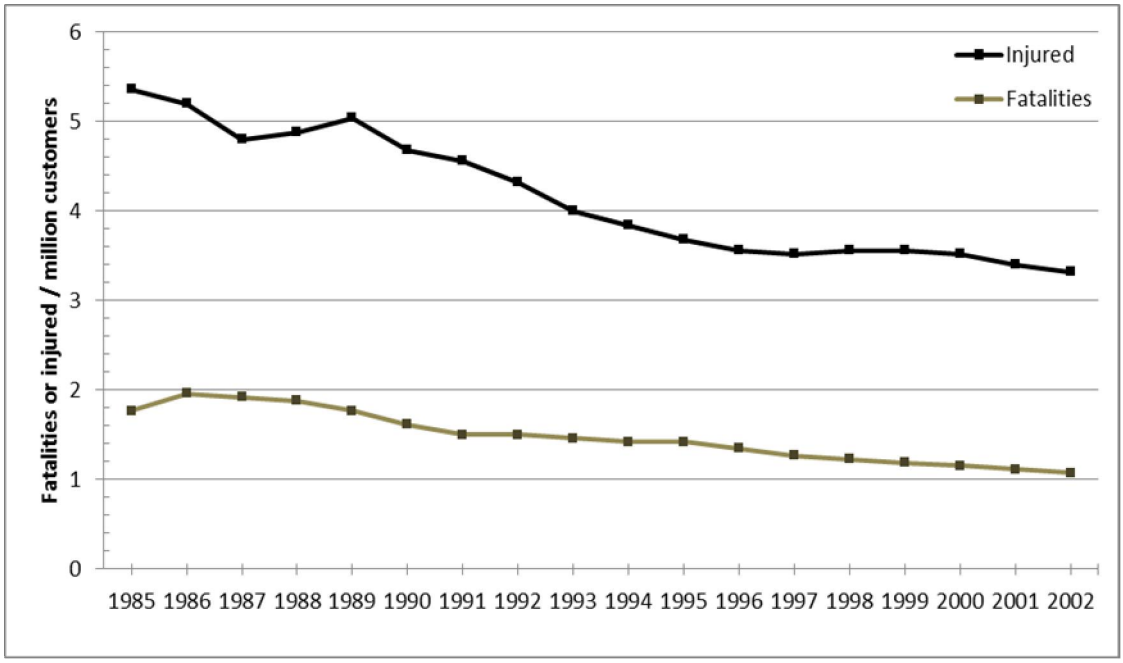

Figure 3.7: Failure rates expressed as fatalities or injuries per million customers

3.4.6 Irish Accident Data

The Irish Gas Safety Committee was established to report and make recommendations in relation to hazardous or potentially hazardous natural gas incidents that have endangered life or property.

In 2003, three incidents of carbon monoxide were reported, two of which resulted in four fatalities whilst the third hospitalised two people[25]. A further incident involving carbon monoxide from a gas fired cooking range was reported in 2005, this again hospitalising two people. The cause of the accident identified as the failure of the flue gas exhaust fan as well as a faulty safety device that failed to engage and stop the flow of gas to the burner[26]. In 2006, another individual had to seek medical attention as a result of carbon monoxide poisoning from a flueless kitchen water heater. These heaters had previously been identified by Bord Gáis Éireann (gas suppliers) as potentially dangerous if operated for prolonged periods of time in an environment where there is inadequate ventilation[27]. Finally, there was a further four incidents reported in 2007, only one of which involved carbon monoxide poisoning, the others caused by fire or explosion[28]. Whilst there were additional reportable accidents between 2003 and 2007, these occurred because of vandalism, negligence or faulty or dangerous equipment beyond the scope of the GAD.

25 Commission for Energy Regulation (2004): **Gas Safety Committee Annual Report 2003**

26 Commission for Energy Regulation (2006): **Gas Safety Committee Annual Report 2005**

27 Commission for Energy Regulation (2007): **Gas Safety Committee Annual Report 2006**

28 Commission for Energy Regulation (2008): **Gas Safety Committee Annual Report 2007**

It is interesting to note that the Gas Safety Committee, whose remit is to address the most hazardous or potentially hazardous gas risks, is primarily concerned with carbon monoxide poisoning in respect of domestic gas consumption. Whilst the danger of a gas explosion is acknowledged, the main efforts of the organisation are directed towards raising awareness of the dangers of carbon monoxide.

3.4.7 Italian Accident Data

Italian data collected from CIG (Italian Gas Committee) show a significant reduction in the numbers of accidents, deaths and fatalities caused by mains gas and LPG distributed in bottles and tanks following the implementation of the GAD in 1997. However, more (limited) recent data suggests that there have not been further reductions in recent years. Looking at the cause of accidents, it is noteworthy that accidents caused by lack of ventilation showed the greatest decrease (from 1998 to 2002) which also produced a significant reduction in asphyxia/poisoning accidents (see Tables 3.5 and 3.6).

Table 3.5: Gas Statistics for Main Gas (1998-2002, 2009 & 2010)

	1998	**1999**	**2000**	**2001**	**2002**	**2009**	**2010**
Gas Accidents	218	175	138	132	137	201	195
Gas Fatal Accidents	25	24	22	27	17	?	?
Gas Injuries	425	361	311	286	273	415	385
Gas Deaths	33	34	33	43	21	28	23
Cause of Accident							
Lack of ventilation	130	110	68	49	51		
Misuse/interference with appliance	26	20	18	8	22		
Defective appliance or materials	11	8	6	9	10		
Installation failure	6	3	3	13	16		
Deterioration of appliance or lack of maintenance	7	3	8	10	11		
External Cause	0	1	1	6	4		
Other or unknown cause	38	30	34	37	23		
Type of incident							
Explosion	39	21	17	18	19		
Fire	23	21	12	10	21		
Explosion and fire	12	16	12	19	13		
Asphyxia/poisoning	144	117	97	85	84		

Sources:
Watt, Glenn (2004): *Overseas and Australian Statistics and Benchmarks for Customer Gas Safety Incidents* (for 1998-2002), downloaded from:
http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.131.7363

and for 20009/2010: CIG (2011) http://www.cig.it/incidenti-da-gas/

Table 3.6: Gas Statistics for LPG (1998-2002, 2009 & 2010)							
	1998	**1999**	**2000**	**2001**	**2002**	**2009**	**2010**
Gas Accidents	262	229	205	159	138	143	123
Gas Fatal Accidents	37	33	16	24	14	?	?
Gas Injuries	288	204	229	180	136	160	148
Gas Deaths	50	39	22	29	17	24	20
Cause of Accident							
Lack of ventilation	49	49	23	20	3		
Misuse/interference with appliance	53	48	26	23	42		
Defective appliance or materials	28	19	36	38	19		
Installation failure	7	7	6	14	10		
Deterioration of appliance or lack of maintenance	20	11	12	2	9		
External Cause	20	0	17	9	0		
Other or unknown cause	97	95	85	53	55		
Type of incident							
Explosion	76	64	78	65	59		
Fire	65	48	41	35	38		
Explosion and fire	70	64	55	41	33		
Asphyxia/poisoning	51	53	31	18	8		

Sources:
Watt, Glenn (2004): *Overseas and Australian Statistics and Benchmarks for Customer Gas Safety Incidents* (for 1998-2002), downloaded from:
http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.131.7363

and for 20009/2010: CIG (2011) http://www.cig.it/incidenti-da-gas/

In a recent report[29], it was noted that, in respect of mains gas, in 2010 more than half of the deaths and injuries continue to be caused by ventilation equipment which is not fit for purpose or is not regularly maintained. Whilst for LPG distributed in bottles and cylinders, 21% of accidents were caused by a lack of maintenance and a further 20% of accidents were a result of user error.

[29] CIG (2011): **Incidenti da Gas – Comunicato Stampo Anno 2010**, available for download from http://www.cig.it/incidenti-da-gas/

3.4.8 Netherlands Accident Data

Watte (2004[30]) presents data for 1986 to 2002 on domestic gas incidents (see Figure 3.8). The high number of CO poisonings in the Netherlands could be attributed to unflued and open flued water heaters installed in kitchens and bathrooms. These were poorly maintained and were installed in rooms which had poor ventilation, a more common occurrence as improvements in home insulation were made. However, there was a noticeable reduction in the number of CO poisoning fatalities in 2001. This can be attributed to an increase in the installation of room space heaters, room sealed combination central heaters and hot water boilers. Equally, safety devices that shut off the gas supply to the burner if dangerous substances are detected have been fitted to gas appliances.

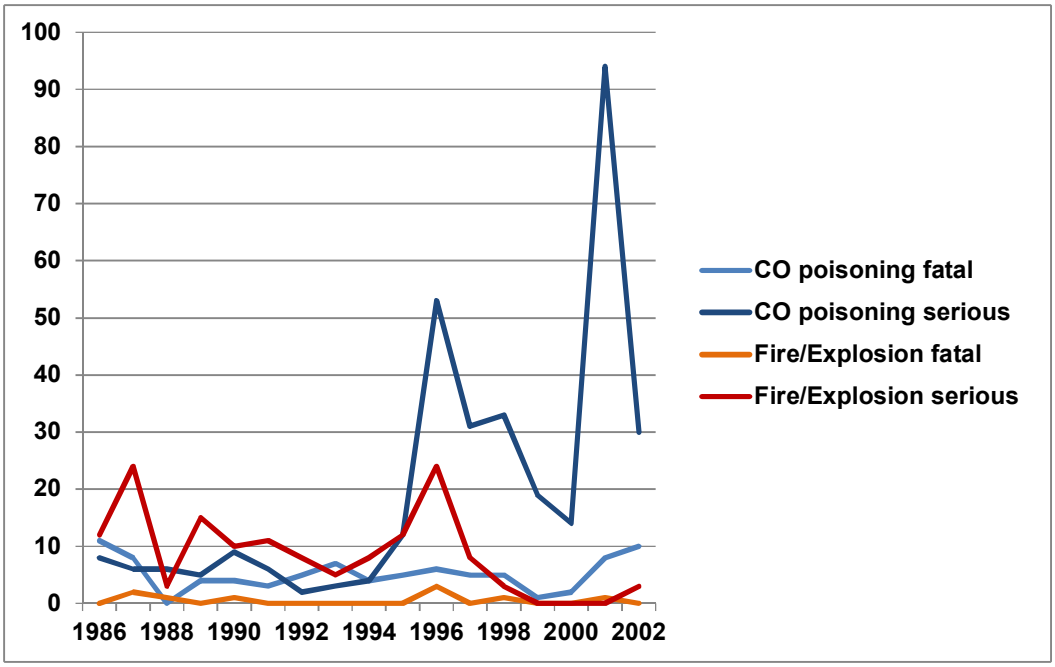

Figure 3.8: Accidents for Gas Failure rates expressed

3.4.9 UK Accident Data

In contrast to the German data, UK data would appear to indicate an increase in accidents, including explosions/fires as well as CO poisoning, with the latter being the main type if incident. These data are presented in Table 3.7 and are for incidents relating to the supply and use of flammable gas in the UK for the period from 2006/07 to 2010/11 based on the RIDDOR reporting system.

30 Watt, Glenn (2004): **Overseas and Australian Statistics and Benchmarks for Customer Gas Safety Incidents,** downloaded from: http://citeseerx.ist.psu.edu/viewdoc/summary?doi=10.1.1.131.7363

Table 3.7: Incidents relating to the Supply and Use of Flammable Gas[(a)]						
Parameter	**Incident Type**	**2006/07**	**2007/08**	**2008/09**	**2009/10**	**2010/11**
Number of incidents[(b)]	Explosion/fire	22	31	27	21	33
	Carbon monoxide poisoning	115	147	172	196	219
	Other Exposure	-	12	4	6	12
	Total	**137**	**190**	**203**	**223**	**264**
Number of fatalities	Explosion/fire	2	2	2	1	3
	Carbon monoxide poisoning	10	13	15	9	14
	Other Exposure	-	3	1	-	1
	Total	**12**	**18**	**18**	**10**	**18**
Number of non-fatalities	Explosion/fire	27	37	30	27	44
	Carbon monoxide poisoning	184	191	289	292	343
	Other Exposure	-	10	5	11	12
	Total	**211**	**238**	**324**	**330**	**399**

Notes: (a) Mainly piped gas but also includes bottled LPG
(b) An incident can cause more than one fatality or injury
Source: HSE (2011): RIDGAS –incidents involving flammable gas (www.hse.gov.uk/statistics/tables/ridgas.xls)

Similar numbers for CO poisoning are provided by the UK charity, CO-GasSafety[31], which reports that mains and LPG gas account for about 50% of accidental deaths associated with CO poisoning.

Further data available from the HSE provides an indication of the percentage of fatalities due to CO incident by appliance type confirm that central heating boilers are the greatest causes of such incidents, followed by domestic hot water heaters. The most common causes of incidents were a lack of servicing and flue/terminal faults, with flue and ventilation faults identified as being common in many domestic incidents boilers; older appliances and open flued boilers represent the highest risk (Frontline Consultants, 2007[32]).

Data from the UK Gas Safe Register suggest that, in 2011, 10 people died from gas related incidents, with a further 300 being injured. The statistics also indicate that on top of these gas incidents (which relate to the appliances and, potentially, components), there were a further 50 accidental deaths and 4,000 accident and emergency attendances relating to CO poisoning. These figures for CO poisoning are much higher than those reported in Table 3.7 but it has not been possible to gather information on why there is this inconsistency.

31 The Carbon Monoxide and GAS Safety Society, www.co-gassafety.co.uk

32 Frontline Consultants (2007): Review of Domestic Gas Safety, Report for the Health and Safety Executive.

3.5 Conclusions on Evidence of Safety Risks

There is a general paucity of data on safety risks for products either currently covered by the GAD or those that are outside its scope. Follow-up consultation with authorities and other organisations has also not produced any conclusive evidence of safety risks associated with products that currently lie outside the scope of the Directive.

Extensive searches on the internet have led only to the identification of reports produced by national authorities, with only the RAPEX data providing an indication of any risks associated with products outside the scope of the GAD – in this case gas regulators which we believe would be considered as components rather than as a fitting forming part of the appliance.

Thus, on the basis of the available evidence, there is little to no justification for bringing new products under the scope of the GAD for safety reasons; i.e. there are no concrete identified problems that need to be addressed. The only specific examples which have been identified where there have been incidents with products outside the GAD are the documented case with a blow torch in the Netherlands and the RAPEX notifications on regulators and, potentially, hoses.

The overall number of accidents involving gas appliances appears low. Of those accidents that do occur, asphyxia and CO poisoning represent a far more significant threat to safety. As a broad indication, we estimate that there are about 200 fatalities and 2,000 injuries associated with (non-industrial) gas-related products across the EU-27 per year – of which, perhaps, 75% are associated with CO poisoning.

Clearly, there continue to be incidents/accidents involving gas appliances, although the majority of these are associated with installation failures rather than safety issues with the appliances. In any event, one would expect that there will be some residual failure rate of gas appliances, their fittings and components, even with compliance with CE marking requirements. This can be illustrated by consideration of the more general types of assumptions that are made within the safety profession with regard to failure rates for industrial boilers, which lie outside the scope of the GAD.

It is also worth noting that further consultation and extensive research has indicated that limited evidence exists to suggest that there are specific safety risks associated with components that are currently outside the scope of the GAD (i.e. outside of the gas appliance, but within the gas installation) or relating to innovations/future products using gaseous fuels not currently included within the GAD scope.

Industrial Failure Rate Data

The UK HSE reports on failure rates for industrial boilers, with these summarised in Table 3.8 below. The intention in reporting these figures here is to provide a broader context to the types of failure rates one might expect in domestic gas appliances and associated components if they are similar to those for industrial boilers. As can be seen from Table 3.8, if we assume that a valve is in use 8,760 hours per annum, then

the failure rates for fittings / components in industrial boilers would be between 1 in 1,000 to 1 in 10,000, depending on the type of failure.

Thus, across the population of industrial boilers, one could expect some level of equipment failures. One would therefore expect there to be a similar likelihood of failures for domestic fittings and components, albeit at a lower rate due to smaller fittings / components and lower pressures. Hence, the statistics presented above for the various countries are not surprising.

Table 3.8: Failure Rates for Different Components of an Industrial Boiler

Component	Item	Type of failure	Failure rate
Safety valve	-	Failure to open	$8.97*10^{-6}$/h
Safety valve	-	Overall rate of failure	$3.2*10^{-6}$/h
Double gas valve	Single solenoid gas valve		$2.83*10^{-6}$/h
Double gas valve	Double solenoid gas valve	Failure to close	$0.08*10^{-6}$/h
Double gas valve	-	Leakage of a single valve	$3.32*10^{-6}$/h
Double gas valve	-	Leakage of both main gas valves	$0.10*10^{-6}$/h
Double gas valve	-	Failure to close	$0.08*10^{-6}$/h
Burner controller	-	Failure to shut down gas valve	$0.03*10^{-6}$/h

HSE (2004): *The application of BS EN 61508 to industrial boiler installations: Report 1. Available at: http://www.hse.gov.uk/research/rrpdf/rr178.pdf*

Table 3.9: Summary of Evidence and Extent of Potential Issues – Safety Risks			
Area of Concern	**Potential Issue**	**Evidence**	**Problem to be Addressed?**
Products under the scope of the GAD	Safety issues associated with gas appliances have not been addressed by the GAD	The statistics on accidents/incidents related to gas-using appliances do not indicate that there are significant safety risks to be addressed, other than those associated with CO poisoning which are caused by matters outside the scope of the GAD (poor installation of flue devices, poor maintenance, etc.). The available evidence suggests that such causes are far more likely than the presence of non-compliant gas appliances on the market.	No concrete evidence of safety problems to be addressed with products falling under the scope of the current GAD
Products outside the scope of the GAD	Some gas-using products remain outside the scope of the GAD and may be posing safety risks	A range of gas using products remain outside the scope of the GAD. Searches on the internet, consultation with Authorities and analysis of notifications to the RAPEX database indicate that there are only one or two documented accidents with such products (e.g. blow torches or blow lamps). In this respect, it should also be remembered that other EC legislation may apply, such as the GPSD, the MD, worker safety legislation, etc.	No concrete evidence of safety problems that need to be addressed for gas-using products falling outside the scope of the current GAD
	Components which are outside the scope of the GAD pose safety risks as they lack harmonised standards that are specifically related to gas-related risks	Authorities have indicated that they believe certain devices that can act as components and that lie outside the scope of the GAD pose safety risks. RAPEX data suggests that there have been notifications due to faulty regulators and hoses in the past, however, it is not possible to determine whether these were fittings forming part of the appliance or were components added as part of an installation.	Limited evidence exists to suggest that there are safety risks associated with components that are currently outside the scope of the GAD.

4. POTENTIAL CONCERNS REGARDING THE INTERNAL MARKET

4.1 Introduction

4.1.1 Overview of Potential Concerns

As noted earlier, one of the main objectives of the GAD is to guarantee a high level public protection in relation to the use and operation of gas appliances as well as the protection of public interest objectives, as referred to in Article 114 paragraph 3 of the Treaty on the Functioning of the European Union. However, it also aims to ensure the free movement of gas appliances through technical harmonisation with regard to risks due to gas. The requirements of the GAD apply to all products falling within its scope placed on the EU market, where this includes those manufactured inside the EU as well as products imported into the EU.

The starting point for identifying issues and determining whether they are problems that may need to be addressed in the revision of the GAD is consideration of the concerns that have arisen to date in relation to its functioning and whether or not it is facilitating the free circulation and use of gas appliances, through technical harmonisation. Once it has been verified that these issues actually constitute problems that need to be addressed, then options can be defined to provide the basis for examining potential revisions to the Directive.

The Commission's Roadmap[33] for the review of the GAD sets out some of the issues identified to date, with many of these also echoed by stakeholders in their responses to consultation as part of this study and to the ***ex-post evaluation study***. These are issues related to:

- potential market failures due to national level requirements, with these impacting on the free movement of goods and services;
- issues related to the scope of the GAD and potential barriers to trade for gas-using products that lie outside its scope; and
- areas where there is a lack of clarity, leading to potential misinterpretation and hence impacts on the internal market.

We consider below whether or not these concerns translate into identified problems that may need to be addressed as part of any revisions to the GAD.

4.1.2 Role of the Mutual Recognition Principle

In considering whether national legislation may be impacting on the free movement of goods and services or whether there are barriers to trade for products that are outside the scope of the GAD, it is important to remember that the principle of mutual recognition also applies to trade within the single market. The degree to which this

[33] DG Enterprise (2011): **Roadmap for Review of Directive 2009/142/EC on appliances burning gaseous fuels (GAD)**, Version 1 dated June 2011.

principle can be relied upon, therefore, becomes relevant to determining whether or not there are internal market failures when products may be regulated by national legislation but not under the GAD.

The principle of mutual recognition (Articles 28 to 30 of the EC Treaty[34]) is essentially that a product lawfully marketed in one Member State should be allowed to be marketed in any other Member State, even when the product does not fully comply with the technical rules of the Member State destination. It guarantees free movement of goods and services without the need to harmonise Member States' national legislation.

The only exception to the requirements of Articles 28 to 30 is an 'obstacle' to placing products on the market which can be justified for public interest reasons (e.g. protection of health and life of humans, protection of industrial and commercial property). When the Member State of destination refuses to allow the marketing of a product, it must be able to justify any such 'obstacles' on a sound technical or scientific basis, by proving that it is absolutely necessary and demonstrating that a measure giving rise to an obstacle is in proportion to the public interest objective.

The Single Market Review of 1996 [SEC(96) 2378] identified two factors relevant to the safety of gas using appliances or components that do not have harmonised standards under the GAD that may preclude application of the mutual recognition principle from delivering the desired degree of freedom in the movement of goods and services across the EU. These are as follows [SEC(96) 2378]:

1) National approaches to technical regulation are so divergent as to preclude smooth application of the principle, e.g., where consumers are directly exposed to the underlying risk, the mutual recognition principle can only play a limited role in providing free circulation.

2) Where mutual recognition has been applied, health and safety inspectorates in the importing country may be unable to assess the reliability of the proof of conformity of products with the corresponding specifications of the exporting country where relevant. In this example, the problem is one of information, which mutual recognition does not require. Development of universally recognised accreditation systems for authorisation of testing and certification bodies, in addition to greater information exchange relating to national regulations and conformity assessment procedure is therefore required.

Where the above two situations do not arise, then there are no barriers to trade within the single market and harmonisation under the GAD would not be required.

Regulation (EC) No 764/2008[35] is aimed at strengthening the day to day implementation of the principle of mutual recognition[36]. The Regulation sets out rules

[34] Articles 28 to 30 of the EC Treaty correspond to Articles 30 to 36 of the EEC Treaty.

[35] Regulation (EC) No 764/2008 of the European Parliament and of the Council of 9 July 2008 laying down procedures relating to the application of certain national technical rules to products lawfully

and procedures to be followed by Member States when taking decisions regarding the free movement of products lawfully marketed in another Member State. Fundamental to the proposal is that it places the burden of proof on national authorities in denying market access to a particular product. However, the Commission's impact assessment [SEC (2007)112] notes the failure of the mutual recognition principle due to the two factors listed above, "specifically for technically complex products or products which can pose safety or health problems".

Thus, hypothetically, there may be cases where application of the principle cannot be applied for certain gas products that are not already covered by existing harmonisation regulations. Evidence is required of such failures, however, before the GAD is extended in scope with the aim of addressing market failures.

4.2 Concerns over Market Failures

4.2.1 Review of Evidence

The work carried out for the ex-post evaluation study included consultation with a range of stakeholders. The evaluation found that the costs associated with testing and certification under the GAD should be compared with the costs of meeting the differing requirements that applied across Member States before the Directive was introduced. In this respect, more than two thirds of respondents consider that GAD compliance has had a positive impact upon the free movement of goods/services, cross border trade, whilst also improving safety.

However, many stakeholders have suggested that further steps are needed to eliminate differences in national legislation. However, when consulted further, they were unable to identify more than just a few such issues, with most national variations in requirements affecting products or issues (such as installation requirements) that lie outside the scope of the GAD. With regard to the latter, legislation for installation requirements differs significantly between countries and consultees have commented that this can make installation in some countries more expensive than others. However, as the GAD does not contain specific installation requirements, mandating instead that national regulations should not have an impact on the design of harmonised products, this does not represent a problem to be addressed under the GAD.

Those aspects of national legislation that have been highlighted are discussed below.

marketed in another Member State and repealing Decision 3052/95/EC, OJEU L218/21, 13 August 2008.

[36] European Commission [COM(2007) 36 final]: Proposal for a Regulation of the European Parliament and of the Council laying down procedures 14 Feb 2007.

Gas Composition

For example, the composition of gas supplied by a State is outside the scope of the GAD and therefore there is no harmonisation of gas supply across Europe. Rather, the GAD requires that States inform the Commission what composition of gas they supply[37]. France currently supplies H and L gas and has made it a requirement for French manufacturers to design their appliances for both gases (albeit with different installation instructions[38]). Similar requirements do not exist in other Member States. Thus, manufacturers in countries that use H gas only, and which design their appliances for use with H gas only, might not be able to sell their appliances in France. Manufacturers of gas appliances in Italy, one of the key manufacturing countries, have commented that cross border trade is impacted by variations in gas supply, however, they have not provided any concrete data to support these statements.

UK Building Regulations

UK respondents have indicated that building regulations may have an influence on markets. For example, the environmental measure Document L1 of the Building Regulations requires all new domestic boilers to be condensing boilers as they are more efficient. This requirement stems from the United Kingdom's National Energy Efficiency Action Plan 2007, which sets out a range of measures to meet the requirements of Directive 2006/32/EC on energy end-use efficiency and energy services to adopt and achieve an indicative energy saving target of 9% by 2016. This plan builds on earlier measures, including a requirement in the Building Regulations that all gas-fired boilers installed after 1 April 2005 (and oil-fired boilers installed after 1 April 2007) must be condensing boilers, whether they are replacements or new installations. There are also requirements[39] in the UK for new appliances in flats and other multi-dwelling buildings to be provided with flame supervision devices (FSDs). Since such requirements are for products which are subject to harmonisation across the EU, they might be regarded as inappropriate.

However, no evidence has been provided that the current situation is leading to any market failures.

German Building Regulations

German building regulations have also been identified as leading to potential market barriers. In this case, the regulations affect the design of boiler flues and require that all flues exhaust through the ceiling rather than through the wall, except for a small number of specific exemptions. This ban on flue exhausts through the wall is set out

37 This information can be found at http://ec.europa.eu/enterprise/sectors/pressure-and-gas/documents/gad/types/index_en.htm

38 This appears to date back to the Arrêté du 28 mars 1980 *Limites de Variations du pouvoir Calorifiqued du Gaz Naturel Distribue par Reseau de Canalisations Publiques*.

39 Gas Safe (2009): **The requirement to install gas appliances (including cooking appliances) with flame supervision on all burners in flats and other multi-dwelling buildings**, Technical Bulletin 015, dated 1 April 2009.

in the Fire Protection Regulations of the German federal states. It does not apply in cases where:

- constructing a flue through the roof is either impossible or would involve a disproportionate cost;
- the heat output is below 11kW and the water heating output is below 28 kW; and
- a flue through the wall does not lead to dangerous circumstances or unacceptable nuisance [to others].

The ban is reported to be based on environmental considerations and appears to be a result of research carried out in the 1980s by the Technical University in Munich which conducted practical experiments into emissions from heating appliances.

Denmark

Denmark has national legislation in place which covers all gas fired household products including those that are currently out of the scope of the GAD, such as gas regulators. Article 3 of the Danish Gas Regulation (BEK nr9566 of 24/09/2004) requires that products not covered by the GAD are certified as meeting Danish standards and are marked with a Danish product mark.

Danish national representatives have indicated that this requirement can lead to confusion. They did not identify this as a barrier to trade necessarily but as an example of how national legislation can lead to differences within the internal market.

Similarly to the UK, the most recently revised building codes also aim to introduce specific requirements in building regulations relating to oil and gas boilers (McCormick & Neij, 2009[40]), with these stemming from the 2005 National Energy Efficiency Action Plan for Denmark.

4.2.2 Conclusions

Consultation has been carried out with a range of industry associations and individual companies and no concrete evidence has been provided to confirm that the above building regulations are not leading to 'problems' that need to be addressed through revisions to the GAD. Nor have manufacturers identified the Danish national legislation as leading to barriers to trade. It would appear that manufacturers have adjusted to these national requirements, or that, perhaps in the case of Denmark, the principles of Mutual Recognition mean that Authorities accept products placed on the market in other EU countries. In all three cases, the consultees raising the issue were not manufacturers but either a representative of a notified body or of an Authority.

[40] McCormick K & Neij L (2009): **Experience of Policy Instruments for Energy Efficiency in Buildings in Nordic Countries**, International Institute for Industrial Environmental Economics, Lund University.

Furthermore, as these requirements were introduced several years ago (e.g. in 2005 and 2007 in the UK), they will have been in effect for several years. As a result, if the requirements were giving rise to significant market barriers, manufacturers would have raised them and some evidence should exist.

More generally, in a recent report on the Mutual Recognition Regulation[41], there is no suggestion that there are significant issues associated with gas-related products amongst the 1,500 notifications (from May 2009 to December 2011)[42].

4.3 Scope of the GAD

4.3.1 Review of Evidence

A number of stakeholders have commented that the scope of the GAD should be extended to cover a range of additional gas-using products. However, in order to determine whether or not such extensions are justified, it is important to consider whether there is evidence of either barriers to trade within the internal market or a safety risk associated with such products.

The types of products that have been suggested by stakeholders include:

- new technologies and innovative products, which are currently not subject to CE marking and which stakeholders believe would be better regulated under the GAD than other harmonisation legislation (e.g. the Construction Products Directive/Construction Products Regulation);
- industrial applications of gas using appliances;
- valves and other parts which face varying treatment depending on whether they are considered a fitting (as currently defined by GAD) and thus part of the appliance (or intended for an appliance) or are considered a component outside the appliance; and
- a range of gas-using products that are currently outside the scope of the GAD and which may not be adequately regulated by other legislation.

As is pointed out in the Specification, modification of the scope of the GAD, in particular its extension, can only take place as a response to identified market failures or unresolved gas risks (or any other discrepancy between the fundamental goals of

41 **First Report on the application of Regulation (EC) No 764/2008 of the European Parliament and of the Council of 9 July 2008 laying down procedures relating to the application of certain national technical rules to products lawfully marketed in another Member State and repealing Decision No 3052/95/EC**, COM(2012) 292 final dated 15.6.2012.

42 Of these notifications, 90% refer to articles of precious metals, whereas the rest to variety of products: foodstuffs (or food additives/medicines), energy drinks and electrical equipment.

the Union and the existing situation) stemming from the products of concern, and which can only be resolved by a European level intervention.

4.3.2 New Technologies and Innovative Products

The GAD covers consumer products, with the term "burning" being associated purely with conventional burning with flames. Since the introduction of the GAD in 1990 (Directive 90/396/EEC which was codified and repealed by 2009/142/EC), there has been considerable innovation in the development of gas appliances for use in a domestic setting. This includes a range of new commercial applications, such as co-generation[43] appliances utilising fuel cell technology.

Some stakeholders consider the definition of appliances to be unclear because, in its current form, it excludes appliances that convert gaseous fuels in another way (other than "burning"), as in the case of fuel cells.

It has been suggested that in anticipation of larger markets being developed for such products, they should be brought within the scope of the GAD. However, discussions have been held with the manufacturers of combined heat and power technology based on fuel cells and other stakeholders to determine whether or not there are currently any barriers to trade within the single market. These discussions have indicated that such barriers do not exist and that there are some CE marking requirements under the Construction Products Directive/Construction Products Regulation. However, one manufacturer did indicate that it would prefer for the scope of the GAD to be extended to cover its particular product (and, hence, take precedence over CPD/CPR in relation to gas safety), but no specific harmonisation problems were identified.

In the case of micro-CHP, it would appear that certification standards are being developed at the national level, for example, in relation to the design and installation of such products (for example the Microgeneration Installation Standard, under the Microgeneration Certification Scheme, issued by the UK Department of Energy and Climate Change). However, these standards are not covering gas-related risks but set out requirements for the approval and listing of contractors undertaking the design, supply and installation of domestic systems containing a micro-generation package; as a result it has requirements in terms of both heat output and environmental performance.

More generally, it could be argued that it would not be appropriate to bring such innovative products under the scope of sector harmonisation legislation in the absence of any evidence of problems in the single market or of safety issues. In such cases, the principle of mutual recognition should apply and the free market should be allowed to function. This may be particularly important with respect to innovative products, as over-regulation of such activity, particularly when products are

[43] Co-generation = simultaneous production of electricity/mechanical power and heat, both of which are used. Other examples of (potential) fuel cell applications are presented by Fuel Cell Europe: http://www.fuelcelleurope.org/index.php?m=7&sm=45

essentially one-off in nature or produced in small batches, may prevent the development of new technologies or delay their coming to the market.

However, it is important to note that one of the major notified bodies already issues CE marks (under GAD[44]) to micro-CHP units (essentially a gas boiler with a 'black box' which generates electricity using fuel cell technology). This approach raises the possibility that there might be a 'middle way' through amending the GAD guidance to include specific new products which are closely related to existing appliances (such as micro-CHP units).

4.3.3 Industrial Applications

Appliances specifically designed for use in industrial processes carried out on industrial premises are excluded from the GAD. It has been suggested that this creates a gap in ensuring the safety of gas appliances being placed on the EU market. However, it would appear that some components (or fittings within an industrial gas appliance) are certified to standards under the GAD (controls, governors, valves, flame safety devices, etc. - Marcogaz, 2009)[45], with a range of other legislation also applying:

- the Machinery Directive 2006/42/EC;
- the Electromagnetic Compatibility Directive 2004/108/EC;
- the Equipment Explosive Atmospheres Directive 94/9/EC;
- the Pressure Equipment Directive 97/23/EC;
- the Measuring Instruments Directive 2004/22/EC;
- the Construction Products Directive 89/106/EEC (soon to be fully replaced by the Construction Products Regulation 305/2011/EU on the 1 July 2013);
- the Low Voltage Directive 2006/95/EC; and
- the Efficiency Requirements for new hot-water boilers fired with liquid or gaseous fuels 92/42/EEC.

From Marcogaz (2009), it would appear that 48 standards may apply to industrial gas systems (and the list provided in this reference is noted as potentially not being comprehensive). In addition, there are a series of end-user Directives that concern employers in gas-fired thermal process industries, with these including Directive 89/391/EEC (the Occupational Safety and Health Framework Directive), Directive 2009/104/EC on the use of work equipment, Directive 1999/92/EC on minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres.

Against the above background of legislation, it is difficult to see that there is any evidence of either a lack of harmonisation legislation to ensure the functioning of the single market or that there are likely to be significant safety risks.

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44 This has been confirmed in direct telephone discussions with the organisation concerned.

45 Marcogaz (2009): **Guidelines for Industrial Gas Installations – Final**, Version 17, UTIL-IGI-07-15, Rev. 08/10/09.

The only data that has been found for inclusion in this report which can shed some light on the degree to which there may be safety risks comes from the study carried out by the Peter Sherrer Institut[46] using German data for 'companies'. Although it is not clear what types of industrial installations using natural gas are included in the category 'companies', it is clear that some of the main causes of gas related incidents would not fall within the remit of the GAD.

Indeed, from those listed in the report, only one incident type would appear to be clearly relevant with this being accidents associated with the "technical failure of control measuring systems". Over the period from 1981 to 2002 there were only 11 such accidents, with these resulting in no fatalities and only one person injured. This is out of a total of 500 accidents in all. Most accidents at companies were due to inappropriate working, mechanical factors and ground motion. Moving from cause to the type of installation, those types of installation responsible for most problems were main lines and service lines up to PN4, with high pressure lines greater than PN4 also associated with a significant number of accidents. "Other components" were responsible for 10 of the accidents, with control stations either in customer installations or in the distribution grid resulting in 24 accidents.

Based on these data, which cover a 20 year time period, it would appear that there is not a significant problem that needs to be addressed in relation to gas appliances used in industrial/factory settings, and that would not be addressed through other legislation on pipeline safety, or as listed above by other harmonisation Directives.

4.3.4 Fittings versus Components

Article 1 of the GAD defines fittings as follows:

> *"means safety devices, controlling devices or regulating devices and sub-assemblies, other than forced draught burners and heating bodies to be equipped with such burners, separately marketed for trade use and designed to be incorporated into an appliance burning gaseous fuel or assembled to constitute such an appliance";*

If all of the above devices are manufactured and assembled individually, all will need to meet the safety requirements of the relevant Directive and be appropriately CE marked. Under GAD, where a safety device, control device or regulating device is incorporated into an appliance, the CE mark is affixed only to the appliance and not to the device. Instead a certificate of conformity should be issued declaring the conformity of the fitting with the provisions of the Directive.

It has been suggested that there is a potential extension of the scope of the term 'fittings' to include all components (excluding metal piping) between the 'appliance' and the 'point of gas supply'. Several respondents to the stakeholder consultation for this study made specific reference to regulators and flexible hoses as examples of

[46] Paul Scherrer Institut (2005): **Comparative Assessment of Natural Gas Accident Risks**, report for the Swiss authorities (SVGW), dated January 2005.

where there are issues associated with fittings. This is consistent with views expressed during the ***ex-post evaluation study***, with respondents indicating that the current scope of the Directive gave rise to inconsistencies across the EU market through the exclusion of regulators.

As noted above, although both UK and Danish stakeholders have suggested that there may be issues with regard to regulators being outside the scope of the GAD from a market harmonisation perspective, it is understood that single market issues have been addressed through use of the principle of mutual recognition. In other words, it has been possible for authorities to allow a product to be placed on the market in the destination country through recognition that the product – in this case regulators - have been certified under other Member State standardisation requirements.

Overall, the evidence collected to date does not provide convincing market harmonisation arguments for CE markings to be required for components due to the existence of barriers to trade. This does not mean that there are not safety arguments, with this aspect addressed in Section 5 of this report.

4.3.5 Expansion of the Scope of Products

Stakeholders have proposed that a range of additional products should be brought within the scope of the GAD for both internal market and safety reasons. For example, the WG GAD Rev sets out a long list of gas-using appliances which it believes may be worthy of consideration. Other stakeholders have also provided lists of potential products to be brought within the scope of the GAD. Examples of suggestions for expansions in scope are given below:

- to extend the scope of the directive to cover all appliances using gas;
- to include regulators;
- to include valves;
- to include hoses;
- to include flame safety devices on domestic cookers;
- to include blow torches or blow lamps;
- to include hydrogen and fuel cell appliances;
- to include gas fired nailing machines;
- to include gas fired toilets;
- to include weed burners;
- to include Combined Heat and Power (CHP) systems;
- to include coffee roasters; and
- to include gas absorption chillers.

However, as noted by the Commission, some of these products might already be subject to harmonisation as they fall under other legislation such as the Machinery Directive, Pressure Equipment Directive (see Section 6 in relation to legal clarity), under other national legislation, or may fall under EU legislation concerning safety in the workplace (e.g. on the use of gas blow-lamps or blow torches). Furthermore, as a default, many of these products would also be subject to the requirements of the

General Product Safety Directive 2001/95/EC[47] (GPSD) which is applicable to all consumer products, while Regulation 765/2008 applies to all products covered by sector harmonisation directives, including both consumer and non-consumer products.

The discussion provided above in industrial appliances highlights the fact that there is a range of harmonisation legislation that applies to gas using appliances. Many of the same pieces of legislation are likely to be relevant to gas appliances used in domestic settings. Thus, widening the scope of the GAD could raise issues with respect to the creation of legislative interdependencies. These may include the following as highlighted by the Commission together with the other Directives listed in Section 4.3.3 (and discussed in more detail in Section 4.4 of this report):

- energy performance of buildings (Directive 2002/91/EC on energy performance of buildings), in particular in relation to gas fuelled appliances used in heating and cooling applications in buildings;
- Directive 2004/8/EC on the promotion of cogeneration based on a useful heat demand in the internal energy market and amending Directive 92/42/EEC;
- Directive 2006/32/EC on energy end-use efficiency and energy services (and repealing Council Directive 93/76/EEC);
- specific product sectors where gas fuelled products are used:
    - Directive 94/25/EC on recreational craft and Directive 2003/44/EC amending Directive 94/25/EC on the approximation of the laws, regulations and administrative provisions of the Member States relating to recreational craft;
    - Directive 2001/56/EC relating to heating systems for motor vehicles and their trailers, amending Council Directive 70/156/EEC and repealing Council Directive 78/548/EEC, Directive 2004/78/EC amending Directive 2001/56/EC of the European Parliament and of the Council relating to heating systems for motor vehicles and their trailers and Council Directive 70/156/EEC for the purposes of adapting to technical progress.

Although a strong consensus to widen the scope exists among Member States and stakeholders, based on the view that the GAD covers mainly products used in domestic and commercial environments, there is currently a lack of evidence as to the extent of any problems in the functioning of the single market with respect to the various listed products/product groups. Consultation has been undertaken with a range of manufacturers and Member State representatives with the aim of collecting such evidence, but no evidence (relating specifically to adverse impacts on the functioning of the internal market) has been forthcoming.

47 **Directive 2001/95/EC of the European Parliament and of the Council of 3 December 2001 on general product safety**. OJ L11, 15.1.2002
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:011:0004:0017:EN:PDF
Study on Market Surveillance and revision of GPSD Directive
http://www.europarl.europa.eu/activities/committees/studies/download.do?language=en&file=32451#search=%20GPS%20

Although in a few cases respondents commented on the significant additional costs incurred in exporting products, such as regulators, that are outside the scope of the GAD and the barriers this causes to new companies wishing to sell into other EU markets, when asked to provide further supporting evidence none was available.

Thus, there is inadequate justification for widening the scope of the GAD from a 'barriers to trade' perspective. Furthermore, the Commission services asked Member States in May 2008 to present to the Commission their national regulations in relation to gas appliances and components currently not covered by the GAD and whether these products are subject to any barriers to trade. The Commission notes in the Roadmap that the responses it received did not clarify the situation and that replies from some Member States confirmed that there were no special national provisions and thus "there are not any regulations that create barriers to trade". Only a few replies gave references to general national laws applicable to gas installations.

The question of whether new products should be taken into the scope of the GAD due to health or safety considerations has been considered in Section 3.2.2.

Respondents in the Netherlands were concerned that, as the scope of the GAD is based on the purpose for which an appliance is used, this might result in confusion due to the fact that now technically almost identical products could be sold in the market with and without a CE mark. An example of this is a low pressure steam boiler which can be used for heating and therefore is within the scope of GAD and must have a CE mark; however, when its intended purpose is low pressure steam generation then it falls outside the scope of GAD and a CE mark (under GAD) is not permitted. Indeed, under the Pressure Equipment Directive, a CE mark would also not be permitted if the volume of the steam boiler was less than two litres[48]. However, as before, while this may be a potential issue, no evidence (relating specifically to adverse impacts on the functioning of the internal market) has been located.

4.4 Misinterpretation and Lack of Clarity

4.4.1 Lack of Clarity and Potential for Misinterpretation

The ***ex-post evaluation study***, the Roadmap for the GAD and WG GAD Revision minutes all identify concerns arising from a lack of clarity in some of the provisions of the GAD. These include:

- clarification of issues that have otherwise been addressed in the so-called Guidance Sheets for the GAD;
- lack of clarity in the scope of the GAD, including issues arising from differences in language translations;

[48] Article 3(3), Directive 97/23/EC.

- inadequate information on different types of gas and pressure systems.
- the potential for an appliance to fall under multiple pieces of harmonisation legislation and the possible double meaning of CE marking;
- lack of clarity on requirements for the rational use of energy;
- clarification and potential exclusion of appliances with a normal water temperature exceeding 105°C; and
- clarification and potential alteration of chimney/flue requirements.

Each of these is considered briefly below with respect to the types of problems that they are currently giving rise to. Other issues that have been identified as potential scope issues, such as the inclusion of CE marking of fittings into a revised GAD, are covered under Section 4.5.

4.4.2 Evidence on Clarification of the Issues Addressed in Guidance Sheets

In order to ensure a coherent application of GAD, so-called Guidance Sheets have been established and agreed in the framework of the Commission's Working Group Gas Appliances[49]. The Guidance Sheets are neither a legally binding interpretation on GAD nor can they formally commit authorities or Notified Bodies. However, based on a lay consensus, they represent a reference for ensuring consistent application of the Directive by all those involved.

There are some aspects which may require clarification. For example, the Guidance Sheets have addressed confusion with regard to appliances whose water temperature exceeds 105°C for only a short time; however, developments in energy efficiency regulation may give cause for confusion as to which Directive should take precedence for regulating the energy efficiency of gas boilers (see below). It is also possible that the Guidance Sheets could be amended to include specific new products which are closely related to existing appliances (such as micro-CHP units as suggested in Section 4.3.2).

4.4.3 Evidence Clarification of Scope and Language Versions

Working Group GAD notes that the current wording of the definition of the scope is not precise and has led to the need for interpretation, e.g. due to the GAD not providing any concrete definition for the largest permitted technical specification of an appliance. This highlights the need for some of the terms and definitions within the current directive to be clarified, so as to ensure that all actors understand their obligations and that there is a level playing field across all of the markets that are intended to be covered by the GAD.

[49] More information on GAD Guidance Sheets: http://ec.europa.eu/enterprise/sectors/pressure-and-gas/documents/gad/guidances/index_en.htm)

For example, a number of stakeholders contacted as part of this assessment indicated that there is a need to further clarify the definition of 'appliances' within the GAD. The existing GAD applies to *"appliances burning gaseous fuels used for cooking, heating, hot water production, refrigeration, lighting or washing and having, where applicable, a normal water temperature not exceeding 105°C. It applies also to forced draught burners and heating bodies to be equipped with such burners"*. However, it is evident from the responses received from the public consultation that a number of stakeholders are unclear as to which appliances fall within the scope of the GAD.

In addition, the Commission's Roadmap indicates that there are also shortcomings with respect to language translations of the GAD which lead to differences between the different language versions and thus potentially implementation in the different Member States. Although it is accepted that there are minor linguistic differences amongst different language versions of the same Directive, each version is equally valid as a basis for transposition into national legislation. Where there are such differences, these may be addressed through the drafting of national legislation and/or through guidance at national and/or EU levels.

It is important to note that consultation with stakeholders (including the respondents to the Public Consultation) has not highlighted any areas of concern with respect to issues associated with different translations/interpretations amongst Member States.

4.4.4 Inadequate Information on Types of Gas and Supply Pressures

Under the framework of the current GAD, technical harmonisation covers gas appliances and their fittings and sets out the essential requirements for the health and safety (and energy efficiency) of an appliance and its fittings that must be fulfilled in their design and manufacture. An area of concern to a number of manufacturers and competent authorities, however, relates to the differences in the types of gas in use and the corresponding supply pressures that exist in the Member States; both of these aspects may have an impact on the design of a gas appliance and/or its fittings. It is argued by some stakeholders that such differences may result in markets not being fully harmonised and thus restrictions on the free circulation of gas appliances. The key issue for the Commission, however, is whether the non-harmonisation of gas supply conditions affects the full harmonisation of the health and safety requirements of products covered by the GAD. If it does not, then it is not a problem to be addressed as part of the revision of the GAD.

The GAD mandates that Member States should communicate the types of gas and corresponding supply pressures used on their territory to the other Member States and the Commission; it also requires that they communicate to other Member States any changes to the gas supply and supply pressure. This information is then subsequently published in the Official Journal of the EU. The GAD also mandates that appliances must be accompanied by technical instructions for the installer, specifying the type of gas and the relevant gas supply pressure. Information on the required flow of air to ensure complete combustion of the gas and to avoid formation of dangerous gases (unless a safety device is fitted) must also be provided.

Manufacturers and notified bodies have indicated that the information required to be communicated by the GAD and published in the OJEU is not sufficient when designing an appliance. They therefore believe that it is important for the GAD to better specify the additional parameters that must be communicated on both existing gas supplies and pressures and then with respect to any changes to gas supplies and pressures.

Addressing this information gap is important for ensuring consumer safety. Natural gas varies in composition, and therefore quality, depending upon where it is sourced, extracted and processed. To ensure equipment burning gases operates safely, manufacturers utilise the EU Harmonised Standard EN437[50]. Using the Wobbe Index, a formula used to compare the heat input that can be attained by equipment fuelled by a gaseous mixture, EN 437 links gas composition to appliances and sets out the parameters for ensuring that an appliance will operate safely and avert risks such as incomplete combustion and sooting, burner overheating, light back (flashback) and flame lift (blow off). Table 4.1 lists the Wobbe Index values used to categorise different types of (natural) gas.

Table 4.1: Examples of Gas Types based on EN 437

Gas Type	Wobbe - Minimum*	Wobbe - Maximum*
H Group	45.7	54.7
L Group	39.1	44.8
E Group	40.9	54.7

** Gross Wobbe Index MJ/m at 15degC (combustion reference and volume measurement reference temperature) and 1.01325 mbar*

Groups H and L in Table 4.1 reflect the two largest categories of natural gas used for fuelling appliances across Europe, with these distinguished by the concentration of methane present in the gas. High calorie gas (H-gas) contains a higher proportion of methane, which makes it better quality than the low calorie gas (L-gas). Although most of Europe utilises only H-gas, Belgium, France, Germany, the Netherlands and Romania consume both. Adding to the confusion, Italy utilises H and M gas, Hungary H and S, and Poland E. Consequently, regions within the same country will be burning different compositions of natural gas.

To safely and effectively market appliances to those countries that utilise different gases, stakeholders consulted for this study have indicated that they need additional information on gas supplies. This additional information should continually be collected and disseminated, detailing any regional differences in supply, the test pressure as determined by the Wobbe Index and further details as to the composition of the gas.

[50] EN 437:2003 (and A1:2009): **Test gases, test pressures and categories of appliances**

Indeed, the WG GAD Rev consulted Member States and other stakeholders on the communication issue in December 2010. The responses were examined in its February 2011 meeting and a proposal on the parameters to be communicated was inserted into the meeting document on the text of the future GAD. The proposal was subject to comments of the WG-GA in its March 2011 meeting. It was agreed that a more complete list of parameters would be identified so as to enable communications to guarantee safety.

4.4.5 Multiple Legislation and Lack of Clarity in the Meaning of CE Marking

The general problems associated with product legislation are set out in each of the proposals for aligning the product harmonisation directives to Decision 768/2008 (i.e. those Directives forming the 'NLF Alignment Package'). This includes the following key issue:

> *Furthermore the regulatory environment has become more and more complex, as frequently several pieces of legislation apply simultaneously to one and the same product. Inconsistencies in these pieces of legislation make it increasingly difficult for economic operators and authorities to correctly interpret and apply that legislation.*

The GAD is applicable to consumer and commercial appliances burning gaseous fuels and distinguishes appliances from fittings, where fittings are defined as "safety devices, controlling devices or regulating devices and sub-assemblies…separately marketed for trade use and designed to be incorporated into an appliance".

As discussed earlier a safety device or regulating device may fall within the scope of the GAD if it has been incorporated into an appliance, or assembled so as to comprise part of the appliance before it is placed on the market. Under these circumstances, it is classed as a fitting and as part of the appliance and must also conform to the essential safety requirements under GAD in addition to any other Directives that may be applicable. Where it is not incorporated into the appliance then it is a component, and may be regulated by other Directives including:

- the Pressure Equipment Directive 97/23/EC;
- the Electromagnetic Compatibility Directive 2004/108/EC;
- the Low Voltage Directive 2006/95/ECC;
- the Machinery Directive 2006/42/EC; and
- the Construction Products Directive 1989/106/EEC and the Construction Products Regulation 305/2011/EU.

It has been argued that, in some cases, this may lead to a lack of clarity as to whether the risks presented by some products due to the use of gas may already be dealt with by existing harmonisation legislation. The key question here is whether there is the simultaneous application of directives (i.e. different directives set standards for different aspects) or whether there is overlap between directives. In cases where there is the simultaneous application of directives, then the CE marking on the appliance

should confer that all applicable standards have been complied with to enable affixing of the CE mark. There is no problem which needs to be addressed in such cases. If however, there are legislative overlaps then these should be addressed as part of the revision.

The Pressure Equipment Directive

The Pressure Equipment Directive 97/23/EC (PED) was introduced to harmonise regulations across Europe regarding the design, manufacture and conformity assessment of pressure equipment and pressure assemblies. It is designed to enhance safety and promote free trade throughout the single market area.

The PED is applicable to "pressure equipment and assemblies with a maximum allowable pressure PS greater than 0.5 bar"[51]. The preamble explains that this cut-off point was selected because "equipment subject to a pressure of not more than 0.5 bar does not pose a significant hazard due to pressure"[52]. The UK gas supply system gives an indicative example of pressures, with gas mains pressure classifications ranging from 30mbar to above 7 bar as shown in Table 4.2[53].

Table 4.2: Pressure Classification	
Pressure	**Pressure in bar**
Low pressure	0 to 75 mbar
Medium pressure	75mbar to 2 bar
Intermediate pressure	2 bar to 7 bar
High pressure	More than 7 bar

Pressure equipment includes vessels, piping and pressure accessories[54]. Safety accessories are within the scope of the Directive, including where incorporated into the assembly[55], provided they are "designed to protect pressure equipment against the allowable limits being exceeded"[56]. Furthermore, heated pressure equipment or assemblies with the risk of overheating intended for generation of steam or super-heated water at temperatures higher than 110 °C having a volume greater than two litres, and all pressure cookers are also within the scope of this Directive[57].

All pressure equipment and assemblies within the scope of the Directive must comply with the essential safety requirements listed under Annex I, whether directly or by conforming to implemented harmonised standards[58]. The nature and rigor of the

51 Pressure Equipment Directive Article 1 – 1

52 Pressure Equipment Directive Preamble (4)

53 http://www.arca53.dsl.pipex.com/index_files/gas1.htm

54 Pressure Equipment directive Article 1 – 1 Pressure Equipment directive

55 Pressure Equipment Directive Article 3 – 1.4 Pressure Equipment Directive

56 Pressure Equipment Directive Article 1 – 2.1.3

57 Pressure Equipment Directive Article 3- 1.2, 2.1 Pressure Equipment Directive

58 Pressure Equipment Directive Article 5 Pressure Equipment Directive

conformity procedures is determined by how hazardous the product is determined to be[59]. This may involve a notified body checking that the materials used is safe and a third party conducting a permanent joining and non-destructive test. Upon conforming to all the relevant provisions, the CE marking affixed to the individual pressure equipment or where appropriate, to the assembly[60].

Some components that form part of an end-user gas installation powered by liquefied petroleum gas (LPG) or a compressed natural gas (CNG) storage tank will be within the scope of the Pressure Equipment Directive. In Figure 4.1 below, the storage tank and the pressure reducing valves operate under high enough pressure to fall within the scope of the Directive. However, should the pressure reducing valves be classified as no higher than category I and fall within the scope of the Gas Appliances Directive, then the Pressure Equipment Directive will not apply[61]. Thus, in the diagram below, as the components are operating under a pressure of 1 bar[62], provided the components have been incorporated into the appliance, the Gas Appliances Directive will apply in the place of the Pressure Equipment Directive.

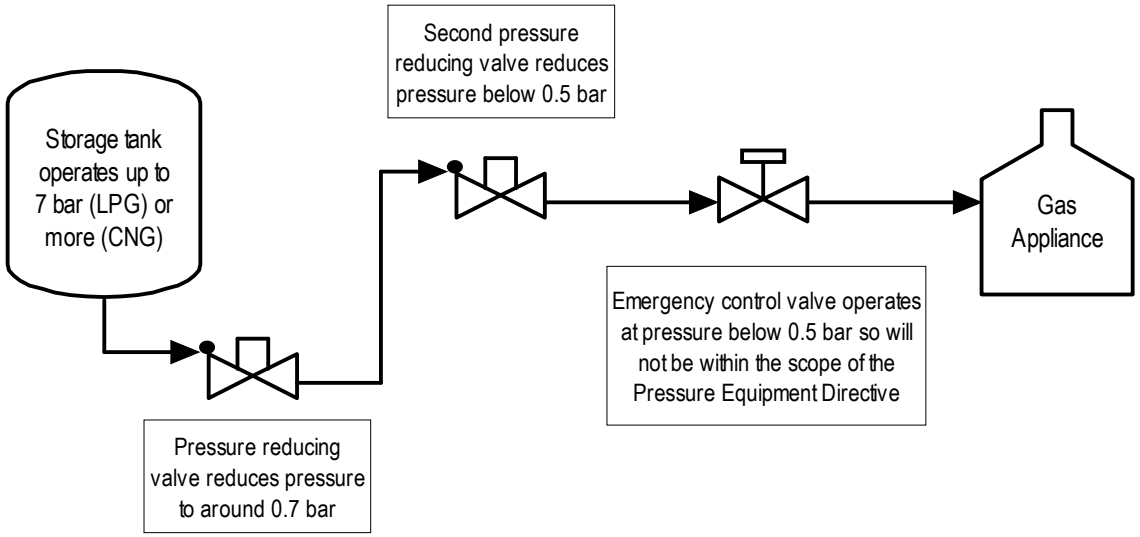

Figure 4.1: Example of an End-User Installation

59 Pressure Equipment Directive Article 10 - This categorises pressure equipment and assemblies into four categories. Each category lists requirements and states which are to be conducted by the manufacturer and notified body. The more hazardous the equipment, the higher the category and tests required to gain the CE mark.

60 Pressure Equipment Directive Article 15

61 Pressure Equipment Directive Article 1 – 3.6

62 Gas Appliances Directive Article 1 (c)

Components that form part of an end-user gas installation supplied by mains gas and those incorporated into a gas appliance are beyond the scope of this Directive. This is because service pipe pressure to a consumer's property is usually between 30 mbar and 50 mbar, which is then further reduced to a working pressure of around 21 mbar by a reducing valve[63]. This is below the threshold of 0.5 bar at which the Directive regulates equipment.

The CEN 14394+A1:2008 for pressure equipment regulates heating boilers with forced draught boilers provided the nominal heat output does not exceed 10MW and the maximum operating temperature of between 100 and 110°C.

Although micro-CHP generators and gas turbines are rapidly developing technologies, it is unclear whether they will fall within the scope of the Pressure Equipment Directive. The Directive excludes equipment "for which pressure is not a significant design factor"[64], and gives an indicative list of such equipment which comprises turbines, "gas/steam turbines, turbo generators, compressors"[65]. Pressure is deemed not to be a significant factor if aspects such as a "very high number of cycles" or "thermal loads together with a complicated form of structure" are more significant than pressure[66]. This remains an issue of contention as matters will be decided on a case by case basis.

Natural Gas Vehicle filling stations are also covered by this Directive, as are LPG and CNG vessel tanks that are permanently installed in an engine powered forklift truck[67]. Any pressure equipment installed on a vehicle, provided it does not contribute directly to the functioning of the vehicle, must conform to the provisions under the Pressure Equipment Directive[68]. Within the context of this study, this could include fixed LPG tanks in caravans provided they are for heating or cooking purposes only[69].

The EMC Directive

The Electromagnetic Compatibility Directive 2004/108/EC (EMC) seeks to guarantee the free movement of apparatus and to ensure that the equipment is electromagnetically compatible and protected from electromagnetic disturbance. It requires that apparatus will not affect the functioning of other apparatus or radio and telecommunications, and that the apparatus has an adequate and reasonable level of immunity to electromagnetic disturbance[70]. It does not regulate the safety of

63 http://www.arca53.dsl.pipex.com/index_files/gas1.htm

64 Pressure Equipment Directive Article 1 3.10

65 Pressure Equipment Directive Article 1 3.10

66 Pressure Equipment Directive Article 1 3.10

67 These vehicles not defined as a motor vehicle as defined under Council Directive 70/156/CEE so the exclusion under the Pressure Equipment Directive will not apply (Article I – 3.5). Equally, transportable gas cylinders which can also be used for forklift trucks excluded from the Pressure Equipment Directive because they are within the scope of the ADR (Article I – 3.19).

68 Pressure Equipment Directive Article I – 3.5

69 Guidelines related to the Pressure Equipment Directive 97/23/EC (PED)

70 Electromagnetic Compatibility Directive Annex I

apparatus in respect of people, domestic animals or property which is covered by the Low Voltage Directive.

This Directive is applicable to apparatus and, under certain circumstances, fixed installations (combination of apparatus used permanently at pre-defined locations)[71]. Apparatus defined as "any finished appliance or combination thereof, intended for the end user and liable to generate electromagnetic disturbance, or the performance of which is liable to be affected by such disturbance"[72]. Sub-assemblies are also deemed to be apparatus, with an indicative example being an electronic temperature control[73].

Unless specifically excluded by the Directive, anything that is powered by electricity is covered, whether the source of power is mains or battery. However, there are a number of exclusions. Within the context of gas appliances, this exclusion includes benign[74] equipment that is incapable of generating or contributing to electromagnetic emissions that could impair other electrical equipment or will function adequately in the presence of an electromagnetic disturbance[75] (the EMC Guide gives a non-exhaustive list of examples which include equipment with resistive loads that have no automatic switching device (thermostat, fan) and filament lamps,[76] protective equipment such as fuses and circuit breakers without active electronic parts[77] etc).

Compliance with the essential requirements of the EMC Directive (Annex I) is demonstrated by the conformity assessment procedure outlined under Annex II (internal production control)[78] or at the discretion of the manufacturer with the procedure specified in Annex III.

The manufacturer may apply the relevant harmonised standards or undertake his own EMC assessment to establish conformity with these requirements[79]. Assessment by a notified body is not compulsory, but the manufacturer is free to seek such assistance if necessary[80]. In any case, it is the manufacturer that has the obligation to issue and sign the Declaration of Conformity, establish the technical documentation and affix the CE marking.

It is possible for an appliance or fittings as defined under the current GAD to fall within the scope of the EMC. Equally, components that form part of the end-user installation may also fall within the scope of the EMC Directive. However, as outlined above, it will not apply to a fitting or component that is considered benign. Equipment that is compliant with the EMC will not emit electromagnetic phenomena

71 Electromagnetic Compatibility Directive Article 2 (c)

72 Electromagnetic Compatibility Directive Article 2 1 (b)

73 Electromagnetic Compatibility Directive Article 2 2 (a)

74 Electromagnetic Compatibility Directive Preamble (9)

75 Electromagnetic Compatibility Directive Article 1.3(a) (b)

76 Guide for the EMC Directive 2004/108/EC Pg. 15

77 Guide for the EMC Directive 2004/108/EC Pg. 14/15

78 Electromagnetic Compatibility Directive Article 7

79 Electromagnetic Compatibility Directive Article 6

80 Electromagnetic Compatibility Directive Article 7 and Annex III

so that it impacts other equipment and will also have sufficient immunity to electromagnetic phenomena should it arise. The GAD will ensure that appliances and fittings will continue to operate safely should there be an occurrence of electromagnetic phenomena. The notified body that undertakes the conformity checks for fittings and appliances under the GAD may refer to the manufacturers' EMC test documentation to avoid the duplication of work.

If the GAD were to change the definition of fittings to include components, there would be no detrimental impact to either Directive because their underlying objectives are different. Components within the scope of the EMC would still need to comply with the essential requirements of the EMC but would in addition need to comply with the essential requirements of the GAD. The EMC seeking to ensure that apparatus will not contribute or be susceptible to electromagnetic phenomena whilst the GAD is focused on ensuring that the appliance will be safe if electromagnetic phenomena were to arise.

The Low Voltage Directive

The Low Voltage Directive (LVD) seeks to harmonise regulation and ensure that only electrical equipment which does not endanger people, domestic animals or property is placed on the market[81]. This Directive applies to electrical equipment, which is defined as "any equipment designed for use with a voltage rating of between 50 and 1000 V for alternating current and between 75 and 1500 V for direct current, other than the equipment and phenomena listed in Annex II"[82]. Article 2 and Annex I list the 'Safety Objectives' of this directive, and it is clear that all risks that may arise from the use of electrical equipment are within its scope, with the exception of electromagnetic compatibility issues, which are dealt with by the Electromagnetic Compatibility Directive[83].

Where electrical equipment is manufactured in accordance with harmonised technical standards, products are presumed to conform to the Low Voltage Directive[84]. If no such standards exist, the manufacturer may conform to international rules issued by the International Electrotechnical Commission[85]. If neither of the above standards is in place, the electrical equipment may comply with the national standards of the manufacturers Member state[86]. Alternatively, rather than conform to any of the above, a manufacturer can construct the equipment so as it conforms to the Annex I safety objectives of the Directive by applying its own solution. It is the manufacturer who attests to the safety of the product and conformity with the Directive, consultation with an independent third party is only voluntary in order to seek assistance or in case there is a challenge[87]. In any case it is the manufacturer that has

81 Low Voltage Directive Article 2

82 Low Voltage Directive Article 1

83 Low voltage Directive Annex II

84 Low Voltage Directive Article 5

85 Low Voltage Directive Article 6

86 Low Voltage Directive Article 7

87 Low Voltage Directive Article 8 and Annex IV

the obligation to issue and sign the Declaration of Conformity, establish the technical documentation and affix the CE marking.

Fittings will often contain electrical components or may themselves be electrical equipment. An electrical timer or fan serves as an example of electrical equipment that may be incorporated into a gas appliance. Taking the timer as an example, if it were to fall within the scope of the LVD, the manufacturer would need to comply with the conformity procedures as outlined above. When the timer is integrated into the appliance and qualifies as a fitting under the GAD, the notified body that checks that the appliance conforms to the essential requirements of the GAD will verify the conformity tests undertaken by the manufacturer for the purposes of the LVD. As noted in respect of the EMC, the GAD is focused on the safe functioning of the appliance. Consequently, the manufacturer of the gas appliance that incorporates the timer will ensure that the timer is incorporated into the gas appliance in a way that ensures the safe functioning of the appliance.

The Machinery Directive

The Machinery Directive harmonises the regulatory framework for the design and construction of machinery. As outlined in the preamble, harmonisation serves an economic and social objective: firstly, a harmonised regulatory regime is of economic importance, the industrial sector being one of the industrial mainstays of the EU economy[88]; secondly, safer machinery reduces the social costs by lowering accident rates[89].

The Machinery Directive is applicable to both machinery and safety components. Machinery is defined as something mechanical which has a specific application, has an assembly of parts that are linked and one of the parts moves[90]. A safety component is defined as any part that fulfils a safety function when in use, the failure of which would endanger the safety or health of exposed persons[91].

A product within the scope of the Machinery Directive must conform to relevant harmonised standards[92]. Alternatively, the manufacturer of the equipment is required to undertake a risk assessment in order to identify the risks connected to that machinery[93]. The results of this assessment influence the design and construction of the product. This process is also influenced by the categorised requirements for certain products, each outlining relevant specific measures that must be adhered to[94]. Only hazardous machines listed under Annex IV are subject to the independent inspection of notified bodies, otherwise a manufacturer conducts self-certification.

88 Machinery Directive Preamble (2)

89 Machinery Directive Preamble (2)

90 Machinery Directive Article 2 (a)

91 Machinery Directive Article 2 (c)

92 Machinery Directive Article 7

93 Machinery Directive Annex I

94 Machinery Directive Article 12

The Machinery Directive is limited in scope with regard to machinery interlinked with gas appliances. It is not applicable to:

- "safety components intended to be used as spare parts to replace identical components and supplied by the manufacturer of the original machinery"[95];
- those electrical and electronic products falling under the scope of the Low Voltage Directive, specifically household appliances intended for domestic use[96]; and
- where "the hazards referred to in Annex I are wholly or partly covered more specifically by other Community Directives"[97].

It will be recalled that the Gas Appliances Directive covers fittings that are incorporated into a gas appliance, ensuring all fittings are safe with regard to hazards relating to gas. Whilst the Machinery Directive will not be applicable in relation to these gas hazards, it will be applicable to appliances and integrated fittings in the scope of the Gas Appliances Directive that have powered moving parts, for hazards that are not covered by the Gas Appliances Directive. Equally, components that are not incorporated into the appliance will be regulated by the Machinery Directive if they are within its scope.

It is interesting to note that some espresso machines are regulated by the Machinery Directive and not the Pressure Equipment Directive or, when powered by gas, the Gas Appliance Directive. This can be attributed to exclusions within the PED and the GAD. The Gas Appliances Directive excludes from its scope appliances whose temperature exceeds 105°C[98]. The exception to this is where water temperature exceeds 105°C for a short period, as with café boilers and coffee machines[99]. However, some espresso makers have been designed to operate at 107°C which would appear to take it beyond the scope of the GAD. Espresso machines are also beyond the scope of the PED because they do not fulfil the criteria of having a volume greater than two litres, as calculated by measuring the volume of water placed under pressure to produce the espresso. Consequently, gas powered espresso machines that continually operate above 105°C must conform to the safety standards contained within the Machinery Directive, with the manufacturer certifying compliance.

The GAD also excludes from its scope "appliances specifically designed for use in industrial processes carried out on industrial premises"[100]. Industrial equipment is therefore regulated by the Machinery Directive and must conform to the essential requirements dealing with the specific risks associated with the use of gas fuel under that Directive.

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95 Machinery Directive Article 1 - 2 (a)

96 Machinery Directive Article 1 – 2. (k)

97 Machinery Directive Article 3

98 Gas Appliances Directive Article 1- 2 (a)

99 Gas Appliances Directive Guidance A 1

100 Gas Appliance Directive Article 1.1

The Machinery Directive will also be applicable to gas turbines and steam turbines. They will often be supplied to the consumer who must then connect it to the drive system, which in the context of this discussion will take the form of gas. As the machinery is part assembled, the manufacturer will have to undertake further assessments to ensure the safety of the machinery.

The Construction Products Directive 1989/106/EEC (CPD) and Construction Product Regulation (CPR) 305/2011 EU

The Construction Products Regulation will fully replace the Construction Products Directive on 1 July 2013. Until such time, only parts of the Directive have been replaced by the Regulation[101]. When it fully enters into force, it will become mandatory for products within the scope of the Regulation that have harmonised European standards to carry a CE mark.[102] CE marking will be voluntary for products that are regulated by a European Assessment under the Regulation.

The legislation seeks to remove the technical barriers to trade in construction products across Europe by harmonising the method of conformity assessment, the methods of test and product performance values to ensure a product is fit for the intended use.

It is applicable to any product or kit marketed for incorporation in a permanent manner in construction works, provided it has an effect on the performance of the construction works[103]. A kit is considered to be any construction product marketed by "a single manufacturer as a set of at least two separate components that need to be put together to be incorporated in the construction works"[104].

To ensure the construction works meet the Essential Requirements contained within Annex I of the Directive, the product must be fit for the intended purpose. This is determined with reference to the relevant Essential Requirements for the construction works, which determine what characteristics a product must meet for it to be considered fit for its intended purpose. There are a series of Interpretative Documents[105] which translate each essential requirement for the works into requirements for the products. These in turn serve as guidelines for the technical specifications.

Technical specifications can take the form of harmonised standards,[106] a European technical approval[107] or national technical specifications[108]. As noted above, CE marking is not mandatory for a European technical approval, because it is a bespoke

101 Articles 3-28, 36-38, 56-63, 65 and 66 will enter force on 1st July 2013

102 Currently voluntary – Ireland, Sweden and UK do not require the CE mark to market such products in their respective domestic market

103 Construction Products Regulation Article 2.1

104 Construction Products Regulation Article 2.2 Construction Products Regulation

105 Construction Products Directive Article 12

106 Construction Products Directive Article 7 Construction Products Directive

107 Construction Products Directive Article 8 Construction Products Directive

108 Construction Products Directive Article 5.2 Construction Products Directive

assessment, usually requested by manufacturers for innovative products for which harmonised standards do not yet exist.

Harmonised product standards include an Informative Annex (Annex ZA), the first part of which contains the regulated requirements and clauses that must be met, with verification undertaken by a notified body. The equivalent mandatory provisions are contained in a European technical approval agreement. Standards not contained within these are those not regulated by Member States and are often included for commercial reasons. They are voluntary and need not be complied with.

The conformity assessment will vary as will the involvement of an independent third party, depending upon the impact of the product on the performance of the construction works. These are summarised in the Table 4.3 below.

Table 4.3: Attestation tasks under the Construction Products Directive[109]

Conformity Attestation	**1+**	**1**	**2+**	**2**	**3**	**4**
Tasks for Manufacturer						
Factory production control	✓	✓	✓	✓	✓	✓
Further testing of samples taken at factory according to prescribed test plan	✓	✓	✓			
Initial type testing			✓	✓		✓
Tasks for the notified body						
Initial type Testing	✓	✓			✓	
Certification of factory production control	✓	✓	✓	✓		
Surveillance of factory production control	✓	✓	✓			
Audit testing of samples	✓					

✓ = Task must be undertaken

The Construction Products Directive/Regulation may be applicable to components that form part of the end-user gas installation and that may not be within the scope of the Gas Appliances Directive. Examples include CE marking EN 682:2002 (Elastomeric Seals - Materials requirements for seals used pipes and fittings carrying gas and hydrogen fluids), CE marking EN 1057:2006+A1:2010 (Copper and copper alloys - Seamless, round copper tubes for water and gas in sanitary and heating application) and CE marking EN 14800:2007 (Corrugated safety metal hose assemblies for the connection of domestic appliances using gaseous fuel).

Indeed, stakeholders have formally asserted that there have been multiple accidents associated with gas hoses marketed with the CE marking EN 14800. In this case, they claim that reliance on the Construction Products Directive alone has failed to impose the necessary design and manufacture standards needed to ensure safe use. However, as previously discussed in Section 3.2.2, it has not been possible to obtain any further detailed information.

[109] http://www.communities.gov.uk/documents/planningandbuilding/pdf/156006.pdf

4.4.6 Lack of Clarity on the Requirements for the Rational Use of Energy

The GAD stipulates that appliances must be so constructed as to ensure the rational use of energy, reflecting the state of the art and taking into account safety aspects. This wording, which is very general, may lead to different interpretations. Certain appliances may be covered by more specific European regulations on energy efficiency, implying that they shall satisfy these requirements. Currently this issue has been dealt with by a Guidance Sheet, but concerns have been expressed as to whether the guidance sheet provides sufficient certainty under the continuously evolving legal framework.

To achieve a reduction in its annual consumption of primary energy, the EU has set minimum energy efficiency standards that seek to reduce energy consumption and increase energy efficiency under the Energy-Related Products Directive (ErP Directive - 2009/125/EC) which replaces the Ecodesign Directive (2005/32/EC). The ErP Directive is wide in scope and is applicable to products which do not necessarily use energy themselves but have significant impact on energy consumption and can therefore contribute to saving energy. It does not in itself create any requirements, but establishes the means to introduce implementing measures which in turn contain detailed provisions. Thus, the ErP can amend other directives, transforming them into one of its implementing measures, as occurred with the Boiler Efficiency Directive[110] (BED - 1992/42/EEC) in 2005.

The majority of stakeholders responding to the Public Consultation indicated that energy efficiency of appliances is adequately dealt with in the current text of the GAD and does not need to be considered in a more concrete way. Some respondents noted that it may be useful to refer specifically to the Energy-Related Products Directive within the text of the GAD, which considers the rational use of energy in greater detail.

The Boiler Efficiency Directive, as amended in 2005, is a measure designed to improve the energy efficiency of boilers within its scope, those being boilers with a "rated output of no less than 4kW and no more than 400 kW"[111]. However, it states that for:

> *"boilers burning gaseous fuels, the procedures for assessing the conformity of their efficiency shall be those used to assess conformity to the safety requirements laid down in Directive 90/396/EEC (GAD) on the approximation of the laws of member states relating to appliances burning gaseous fuels"*[112].

This suggests that the present measure for energy efficiency for gas boilers is that under Annex I of the GAD. However, the GAD guidance (2003) stipulates that with regard to the rational use of energy:

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110 In July 2005, Article 21 of the Ecodesign directive amended the Boiler Efficiency Directive.

111 Energy Related Products Directive Article 1

112 Energy Related Products Directive Article 7.2 Energy Related Products Directive

> *"for products with an important energy consumption, requirements have been laid down by Community legislation, i.e. boilers with heat input 4 kW - 400 kW, which shall satisfy the requirements of the Directive 92/42/EEC"*[113].

Despite this apparent lack of clarity in the legislation, consultation with stakeholders suggests that the Boiler Efficiency Directive (as amended by the ErP) is the primary legislation. In any event, it would appear that clarifications are required for the relationship between energy efficiency Directives applicable to specific appliances and the general requirement within the Gas Appliances Directive.

Working Groups are close to introducing a specific measure for the energy efficiency of boilers fired by gas fuels. Consultation on the draft regulation began in February 2012. The delay in its implementation attributed to time taken to clarify the best approach and methodology to regulate the efficiency of boilers. When the measure comes into force, it will repeal the Boiler Efficiency Directive and will be the guiding document for gas heaters (this term interpreted broadly) with other gas appliances still being regulated by the GAD.

4.4.7 Exclusion of Appliances with a Normal Water Temperature Exceeding 105°C – Clarification

In the current GAD, appliances are defined as *"burning gaseous fuels used for cooking, heating, hot water production, refrigeration, lighting or washing and having, where applicable, a normal water temperature not exceeding 105°C..."*. Therefore gas appliances with a normal water temperature that exceeds 105°C are excluded from the scope of the GAD. However, responses received from the consultation process suggest that this limit is no longer relevant and could in fact be removed from the GAD. Discussions with relevant stakeholders indicates that the inclusion of the 105°C limit within the GAD was undertaken in order to distinguish appliances from those covered by the Simple Pressure Equipment Directive (previously Council Directive 87/404/EEC, which has since been replaced by Directive 2009/105/EC). However, this provision is not now considered to serve any useful purpose, hence could potentially be removed from the GAD.

4.4.8 Alteration of Chimney/Flue Requirements

A number of respondents to the European Commission's public consultation exercise indicated that gas appliances often consist of an appliance body (e.g. boiler) and a flue/chimney system. Respondents suggest that this system has proven effective and reliable in ensuring consumer safety.

Currently, certification of the appliance body and a chimney/flue as a single appliance can restrict the use of alternative flue systems which prevents competition from independent chimney manufacturers. This is because, in this situation, a specific chimney is certified as part of the appliance, thus restricting the use of other suitable chimneys (regulated by the Construction Products Directive/Construction Products

[113] Gas Appliances Directive (90/396/EEC) Guidance B11

Regulation) that are available on the market. However some stakeholders suggested that consideration be given to 'joint certification' in which manufacturers could provide the necessary information to allow the choice of an appropriate flue (from those available on the market). Although it could be argued that this would enhance competition and increase consumer choice, without detrimentally impacting consumer safety, it is simply not possible under the current GAD regime. In other words under GAD, appliances which incorporate flues or chimney systems can only be certified as a 'whole' while those appliances without flues/chimneys are certified irrespective of the flues/chimneys to which they may be attached.

4.5 Summary

The previous sections have set out the evidence available to date on the extent to which there are barriers to trade within the single market for gas using appliances resulting from a lack of harmonised standards. The main conclusions of the discussion are summarised in Table 4.4, with respect to barriers to trade.

Table 4.4: Summary of Evidence and Extent of Potential Issue – Barriers to Trade			
Area of Concern	**Potential Issue**	**Evidence**	**Problem to be Addressed?**
Market failures due to other national legislation (e.g. buildings regulations)	Member States have legislation covering products within and outside the scope of the GAD	No evidence that other related national legislation is acting as a barrier to trade, suggesting the principle of mutual recognition is being applied or that manufacturers are able to place appropriate products on the market; however, the potential for barriers to trade exist	No concrete evidence of a problem to be addressed in revision of the GAD.
Market failures for products outside the scope of the GAD	A range of new technologies or innovative products which could be classed as gas-using appliances (e.g. CHP combined with fuel cell technologies) and brought under the scope of the GAD, with this leading to potential for barriers to trade due to a lack of harmonised standards	No evidence of barriers to trade identified with respect to new technologies or innovative products. Harmonised standards exist under other legislation (e.g. the CPD/CPR) which may affect some of these items. Although some stakeholders may wish to be brought under the scope of the GAD, they also indicate they are not experiencing barriers to trade. In addition, creation of new standards could hinder the rate of innovation if not sufficiently flexible	Manufacturers indicate that there are no current barriers to trade, so no problem to be addressed at this point in time.
	Industrial appliances currently lie outside the scope of the GAD	No evidence of barriers to trade with respect to industrial appliances. A range of harmonised standards typically apply to such appliances, with this including GAD standards being used, as well as those under the PED, MD, LVD, EMC, etc.	No concrete evidence of a problem to be addressed in the revision of the GAD.
	Certain devices are classed as fittings when incorporated into an appliance but as components when added as part of installation	There have been cases in the past where authorities have refused to allow certain components to be placed on the market, but these have been addressed through the principle of mutual recognition. It is also argued that CE marking of components may take place under legislation other than the GAD, leading to confusion. However, there is no evidence of a barrier to trade for such components across the internal market	No concrete evidence of barriers to trade in the internal market due to application of the principle of mutual recognition or the fact that CE marking may exist under other legislation.
	Gas using products lie outside the scope of the current GAD	A range of products has been suggested by Authorities for inclusion under the GAD. However, consultation has found no evidence that there are barriers to trade in these products across the single market	No concrete evidence of a problem to be addressed in the revision of the GAD. Note that other CE marking legislation may apply.

Table 4.4: Summary of Evidence and Extent of Potential Issue – Barriers to Trade			
Area of Concern	**Potential Issue**	**Evidence**	**Problem to be Addressed?**
Lack of clarity and potential for misinterpretation leading to market failures	Guidance sheets require up-dating	The Commission and GAD Working Group and stakeholders have identified the need for up-dating of Guidance Sheets, e.g. in relation to energy efficiency. The rapid developments in relation to energy efficiency and the need to reference other EC legislation means that there is the potential for confusion across the market	Consultees have identified the need for clearer guidance in relation to energy efficiency.
	Lack of clarity due to issues with language translations	The Commission has identified this as an issue. No evidence of current problems identified through consultation or literature review.	No 'problems' have been identified.
	Variable types of gas and pressure systems	Numerous consultees (manufacturers and notified bodies) have identified the need for improved information on the types of gas and pressure systems that exist in MS. Manufacturers also indicate that differences in gas pressures and the need to design products to accommodate varying national requirements are a barrier to trade	Regulation of gas supplies is outside the scope of the GAD.
	Multiple harmonisation legislation exists with this leading to the potential for confusion	It is standard for multiple harmonised standards to apply to an end product and this should cause no barriers to trade (indeed the reverse) unless there are conflicting overlaps. No evidence of conflicting overlaps exists with respect to the PED, LVD, EMC or MD. It is less clear that there are not issues regarding overlaps with the CPD/CPR, in particular in relation to hoses which would be acting as components to a gas installation; flues have also been noted as a potential issue due to variations in national building regulations (but see above regarding national legislation).	Although there may be some issues, no 'problems' have been identified.
	Lack of clarity for requirements on the rational use of energy and energy efficiency	The GAD and the BED (as amended by the ErP) refer to standards for boiler efficiency, with this potentially leading to confusion. Although consultation indicates that stakeholders treat the BED as the primary legislation, clarifications are required on the relationship between energy efficiency Directives applicable to specific appliances and the general requirement within the Gas Appliances Directive.	Stakeholders would appear to be correctly applying the BED standards, but clarity should be provided as part of revision of the GAD (or through amending the Guidance Sheets).

5. POTENTIAL CONCERNS OVER OPERATION OF THE DIRECTIVE

5.1 Introduction

In July 2008, the Council and the European Parliament adopted the New Legislative Framework (NLF) to enhance the functioning of the internal market in goods. The NLF consists of two complementary instruments, Regulation 765/2008/EC[114] on accreditation and market surveillance and Decision 768/2008/EC[115] establishing a common framework for the marketing of products. The Decision requires that its provisions are to be used when legislation is revised. This stems from an internal survey which showed that for a majority of existing directives, there was a need to address technical, sector-specific elements in addition to the observed problems at horizontal cross-sectoral level.

The GAD was not included as one of the ten directives with deficiencies of a horizontal nature relating to non-compliance and incoherence. It is understood from the Commission that this is because adoption of the alignment package would not have permitted any substantive technical changes to be made to the GAD as part of its up-dating. As it was felt that the probability that there may be a need to make technical changes in the framework of the revision of the GAD was high, it should be examined independently.

As a result, the horizontal elements of the NLF may also be relevant to the GAD, as they are aimed at providing solutions that can work across all sectors. The stated objectives of aligning product legislation to the NLF are set out in the impact assessment for the NLF Alignment Package – reproduced in Table 5.1 (next page). These objectives are considered equally applicable to aligning the GAD with the NLF.

The NLF is designed to work as a toolbox containing provisions (in the form of pre-prepared Articles) which act as common elements of technical harmonisation legislation, including for example:

- the definitions and obligations of economic operators (as set out in Articles R2 to R7);
- traceability provisions;
- criteria for notified bodies (as set out in Article R17);
- enables self-certification as part of conformity assessment; and
- enhanced cooperation obligations in the context of revised market surveillance and safeguard clause mechanisms (as set out in Articles R31 to R34).

[114] Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products and repealing Regulation (EEC) No 339/93.

[115] Decision No 768/2008/EC of the European Parliament and of the Council of 9 July 2008 on a Common Framework for the Marketing of Products, and Repealing Council Decision 93/465/EEC.

Table 5.1: Objectives of Legislative Intervention – NLF Alignment		
General	**Specific**	**Operational**
Ensure a high level of protection of public interests, in particular public health and safety and consumer protection	Non-compliant products contravening the GAD will inevitably be illegally placed on the market. Reduce the number of non-compliant products, in particular unsafe products	Ensure traceability of products
		Ensure controls on product conformity throughout the whole supply and distribution chain
	Improve market surveillance mechanisms and tools	Provide market surveillance authorities with an effective cooperation mechanism to ensure a common approach to non-compliant products
	Ensure the reliability and high quality of conformity assessment activities carried out by notified bodies	Specify common criteria for the assessment, monitoring and control of NB to be applied equally throughout the EU
Ensure the proper functioning of the internal market in the sectors concerned	Ensure equal treatment of non-compliant products throughout the EU market and equal treatment of economic operators in the enforcement process	Provide market surveillance authorities with an effective cooperation mechanism to ensure a common approach to non-compliant products
	Ensure equal conditions regarding the assessment and monitoring of notified bodies	Specify common criteria for the assessment, monitoring and control of NBs to be applied equally throughout the EU
	Ensure consistency of conformity assessment services carried out by notified bodies	Ensure coordinated approach of notified bodies to conformity assessment
Simplify the regulatory environment	Facilitate interpretation and implementation	Clarify unclear terms and provisions in the directives
	Ensure more consistency of terminology and procedural requirements throughout the directives	Eliminate unnecessary differences in terminology
Source: Impact Assessment for the NLF Alignment Package, SEC (2011) 1376 final, dated 21.11.2011.		

In developing the form in which these NLF provisions could be best adapted to the Directive, consideration will be given to developments relating to other directives. Particular attention will be given to the proposal to align other product harmonisation directives to Decision 768/2008[116], which has been the subject of a public consultation exercise[117] and an associated Impact Assessment (IA)[118].

[116] See DG Enterprise: http://ec.europa.eu/enterprise/policies/single-market-goods/regulatory-policies-common-rules-for-products/new-legislative-framework/index_en.htm

[117] See DG Enterprise: http://ec.europa.eu/enterprise/newsroom/cf/itemlongdetail.cfm?item_id=4289

5.2 Obligations of Economic Operators and Traceability

5.2.1 Requirements under the NLF

The European Commission[119] has indicated that one of the reasons for adopting the NLF was a finding that in some sectors (not including gas appliances) a significant number of products were being placed on the market illegally, as they did not fulfil the requirements set out in the corresponding directives. Some actors were simply affixing the CE marking to their products, even though these products do not fulfil the conditions for being CE marked.

The IA for the NLF alignment package indicates that one reason for this illegal behaviour is that importers and distributors are not carrying out the necessary checks to ensure that they are not supplying non-compliant products. They either: rely on the manufacturer to ensure the compliance of the product; may not be aware of the applicable legislation; or may fail to verify whether a product is actually intended to be sold on the EU market. The IA for the NLF states that these problems arise because the directives only contain obligations for manufacturers; they do not address other economic operators. It is recognised that, to a degree, such problems may be addressed by the General Product Safety Directive (2001/95/EC) which imposes general obligations which also apply to consumer products. The Blue Guide[120], designed to assist Member States and those concerned with the free circulation of CE marked products contains a section that gives some general guidance to importers and distributors which can be seen as best practice recommendations.

The IA also states that market surveillance authorities often find it difficult to trace the economic operators supplying non-compliant products, in particular when the products originate in third countries. It was determined that these problems could be addressed by aligning the relevant legislation to the provisions in Decision 768/2008 designed to tackle this problem.

The NLF Decision clarifies the obligations of manufacturers and authorised representatives and introduces obligations for importers and distributors, as follows:

- **Obligations for importers.** Importers must verify that the manufacturer has carried out the applicable conformity assessment procedure and has drawn up technical documentation. They must also make sure with the manufacturer that this technical documentation can be made available to authorities upon request. Furthermore, importers must verify that subsystems and/or safety components are correctly marked and accompanied by the instructions and safety information.

118 New Legislative Framework (NLF) Alignment Package, **Commission Staff Working Paper - Impact Assessment**, accompanying document to the *10 Proposals to Align Product Harmonisation Directives to Decision No 768/2008/EC,* SEC (2011) 1376 final, dated 21.11.2011.

119 Ibid.

120 EC (2000): **Guide to the Implementation of Directives Based on the New Approach and Global Approach**, Luxembourg. http://europa.eu.int/comm/enterprise/newapproach/newapproach.htm

They must keep a copy of the Declaration of conformity and indicate their name and address on the subsystems and/or safety components.

- **Obligations for distributors.** Distributors must verify that the subsystems and/or safety components bears the CE marking, the name of the manufacturer and of the importer, if relevant, and that it is accompanied by the required documentation and instructions.

- **Additional manufacturer obligations.** In addition to the obligations that the current legislation already foresees for manufacturers, they must provide instructions and safety information in a language easily understood by consumers and end-users. Furthermore, they are subject to the same obligations on sample testing and product monitoring as importers.

- **Requires co-operation of importers and distributors with market surveillance authorities**. Importers and distributors must cooperate with market surveillance authorities and take appropriate actions when they have supplied non-compliant subsystems and/or safety components.

Traceability

One major difficulty identified in the NLF IA is the problems authorities can face regarding the traceability of non-compliant products and the operators who have supplied them, particularly when the products originate in third countries. This problem arises because under some of the other Directives the authorities lacked the information required to be able to identify and contact manufacturers based in third countries (delays in time, no contact details, no voluntary cooperation, competence of authorities limited to the EU, etc.).

Thus, the NLF introduces enhanced traceability obligations for all economic operators. Subsystems and/or safety components have to bear the manufacturer's name and address and a number allowing authorities to identify and link the subsystem and/or safety component to its technical documentation. When a subsystem and/or safety component is imported, the importer's name and address must also be on the subsystem and/or safety component. Furthermore, every economic operator must be able to identify towards authorities the economic operator who has supplied him with a subsystem and/or safety component or to whom he has supplied a subsystem and/or safety component.

However, the current GAD already has some requirements concerning traceability. In particular, the CE marking must be followed by the identification number of the notified body involved in the production control phase. Furthermore, information must already be provided on the manufacturer's name, registered trade name or trade mark to enable identification. One would not expect therefore these same traceability issues to arise under the GAD.

5.2.2 Evidence of Problems under the GAD

In Section 3.3.1 of this report, we provide a summary of notifications made to the RAPEX system from 2005 to April 2012.

As indicated in Section 3.3.1, over the period from 2005 to April 2012, 53 notifications were made by Member States to RAPEX. These covered products manufactured within the EU as well as products imported into the EU from China, Taiwan, Canada, Turkey and Vietnam. The number of notifications by source of the producer is illustrated in Figure 5.1, with this clearly showing the dominance of products imported from China as leading to potential consumer safety risks.

The data presented in Figure 5.1 highlights that most non-compliant goods were imported rather than manufactured within the EU. It also highlights that in at least one case it was not possible for the Authorities to identify the country of origin of the manufacturer of the good, however, this notification was made in 2007; the country of origin is reported in all other notifications. In total 63% of notifications related to imported products.

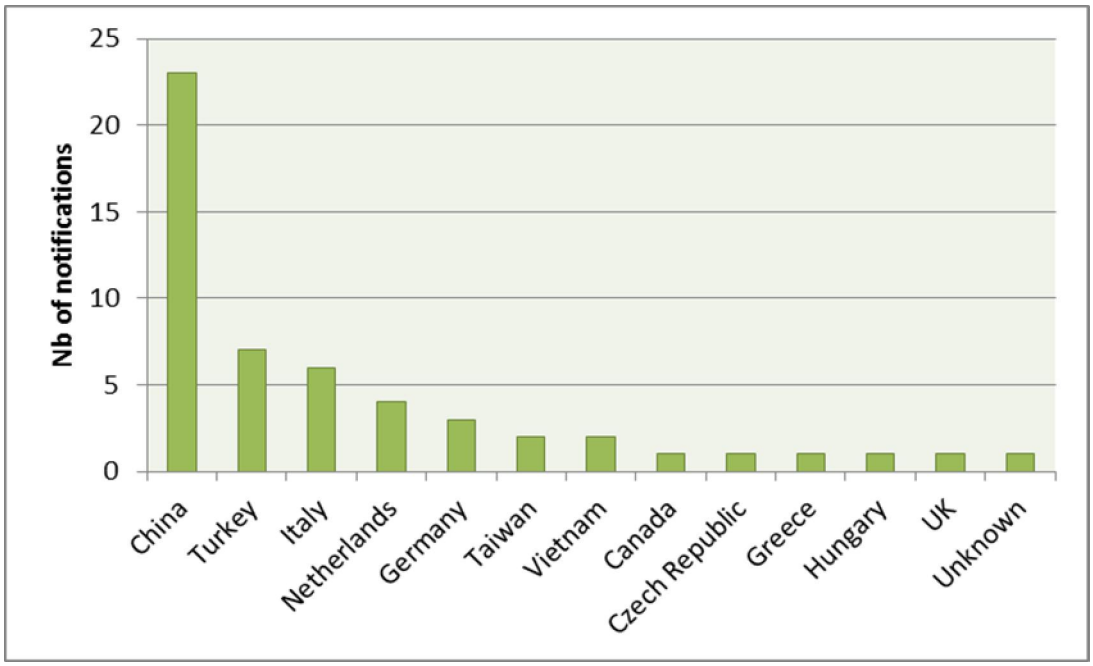

Figure 5.1: Source of Products Covered by RAPEX Notifications 2005 to 2012

Examining the measures then adopted by the notifying country in relation to imported products provides further context. The reported actions vary from:

- voluntary withdrawal from the market from and recall from consumers;
- sales ban and recall from the market ordered by authorities and in some cases from consumers; and
- voluntary corrective actions taken by the importer or distributor.

In 50% of cases, sales bans with or without a recall from consumers were ordered by authorities. In 26% of cases, there was a voluntary withdrawal of the product from the market, with or without a recall from consumers; we assume these withdrawals were made by manufacturers as importers or distributors are not explicitly mentioned. In 11% of the cases, importers voluntarily took action, while in a further 11% distributors voluntarily took action.

This suggests that in up to 50% of the cases there may have been a lack of cooperation with surveillance authorities. Of this sub-set of notifications, 70% related to sales bans being placed on products manufactured in China.

It should also be noted that sales bans were also placed on 40% of the products produced in the EU (e.g. country of origin Italy or Germany). Again this suggests that Authorities could either not trace the manufacturer or that there was not an adequate level of cooperation with market surveillance Authorities in the notifying country.

However, work on the ***ex post evaluation*** also found that in some countries, when a faulty product is identified, market surveillance authorities inform the importer or the Notified Body but not the overseas manufacturer.

This analysis suggests that there may currently be problems under the GAD with regard to the obligations placed on importers and distributors in terms of providing the manufacturers name, contact details, etc. and with respect to manufacturers in terms of traceability. This would also include the additional obligations in terms of product testing and monitoring, and cooperation with surveillance authorities.

Additional Manufacturer Obligations

The RAPEX data have also been analysed with regard to the reason for non-compliance. From the detailed information that is available in the notifications, it is clear that a significant percentage are being notified due to the instructions accompanying the appliance not being sufficiently clear for the end-user (although no incidents are reported against these reported non-compliances). This would appear to be a particular issue with camping stoves, barbecues and outdoor equipment.

Thus there is some evidence to support a call for additional obligations on manufacturers to ensure they must provide instructions and safety information in a language easily understood by consumers and end-users.

5.2.3 Conclusions

From the above analysis, there is some evidence that there is a low level problem in relation to the importers, distributors and manufacturers currently fulfilling the types of obligations that the NLF is aimed at clarifying. Thus, there may be benefits from adopting these additional definitions and clarifications into the revised GAD.

As part of the country case studies carried out for the ***ex post evaluation***, Member State stakeholders were asked what were the main potential areas for improvement of

the GAD. One of the aspects highlighted by Denmark was the need to improve the level of quality control of appliances entering the market from third countries; Denmark is one of the countries that has made notifications to RAPEX, with this including products imported from Turkey.

France also identified appliances imported from countries outside the European Union as a potential issue. Consultees to the ***ex post evaluation*** noted that several cases have been identified where modifications were made to the appliance following the placement of the CE mark[121]. They suggested that there needed to be tighter controls on third country products coming into the internal market. However, they also noted that in some countries, such as Belgium, strong market surveillance already limits the entry of non-certified third country products to the national market.

Although there were no specific questions relating to 'Economic Operators and Traceability' in the European Commission's Public Consultation, there were no related issues highlighted by the 89 respondents.

5.3 Accreditation of Notified Bodies

5.3.1 Requirements under the NLF

While most Notified Bodies (NBs) carry out their tasks in a thorough and responsible manner, across the various market harmonisation directives, the IA for the NLF notes that there have been some cases which cast doubts on the competence of certain bodies and the credibility of certificates issued by them. It also notes that there can be differences in the approach and the level of rigour in how Member States evaluate and monitor the competence of notified bodies. The IA covering the ten pieces of sector legislation found that there were particular concerns about the competence of subsidiaries or subcontractors located outside the EU, and it was concluded that this problem could be addressed by aligning the legislation to the provisions in Decision 768/2008 designed to tackle this problem. In particular, the Decision places greater emphasis on the use of accreditation in the assessment of notified bodies, with the intention of improving the consistency of approach across Europe.

The NLF Decision therefore does the following:

- **Revises the procedure for notification of notified bodies**. Member States notifying a body must include information on the evaluation of competence of that body. Where competence is demonstrated by an accreditation certificate, a facilitated procedure applies. Where accreditation has not been used to evaluate the competence of a notified body, the notification must comprise the documentation demonstrating how the competence of that body has been evaluated. Other Member States will have the possibility to object to a notification within a certain period;

[121] In this context, it is assumed that the modifications went further than those that could occur without invalidating the CE mark.

- **Reinforces the information and other obligations for notified bodies**. Notified bodies must inform notifying authorities about refusals, restrictions, suspensions and withdrawals of certificates and other notified bodies about negative conformity assessment results. They must also perform conformity assessment in a proportionate manner taking due account of the size of an enterprise, the structure of the sector, the complexity of the product technology, etc.; and

- **Clarifies that subsidiaries or subcontractors must also comply with the notification requirements**.

Related to Decision 768/2008 is Regulation (EC) No 765/2008, which sets out requirements for the accreditation of notified bodies across product harmonisation legislation. The aim of the Regulation is to organise accreditation at the national and European levels; irrespective of the different sectors of activity in which accreditation is used. It insists on the public authority nature of accreditation in order for it to be the last level of public authority control. National accreditation bodies will be required to be members of European co-operation for Accreditation (EA[122]) and to participate in the peer evaluation programme operated by EA as the preferred means of demonstrating compliance with the legal requirements.

To improve the consistency of accreditation services across Europe, the Regulation sets common requirements for national accreditation bodies, to be monitored by Member State governments. The Regulation essentially requires national accreditation bodies:

- to be independent from the conformity assessment bodies they accredit;
- to be objective and impartial;
- to employ competent personnel for the tasks to be carried out;
- to operate on a not for profit basis;
- not to offer services offered by conformity assessment bodies; and
- not to compete with other national accreditation bodies.

Regulation (EC) 765/2008 of the NLF also allows accredited in-house bodies to undertake conformity assessment activities for the purposes of implementing the procedures set out in conformity assessment Module C2: Conformity to type based on internal production control plus supervised instrument checks at random intervals.

5.3.2 Evidence of Problems under the GAD

The ***ex post evaluation*** of the GAD found some evidence of similar concerns, particularly with regard to the competence of some of the NBs dealing with third country manufacturers. However, there is limited evidence of non-compliant goods being passed for CE marking. A summary of views collected during the ***ex post evaluation*** is presented below. All of these comments have to do with the

122 http://www.european-accreditation.org/content/ea/EuropNetwork.htm

competence of notified bodies rather than the need to reinforce the information and other obligations or to clarify the need for subsidiaries or others to comply with notification requirements.

Evidence from the Country Case Studies

German stakeholders indicated that, while in the pre-GAD era manufacturers had to certify their products at their national notified body, it is now possible to select a notified body in any country within the European Union. As there are differences between these testing houses in terms of the equipment they have at their disposal, manufacturers often choose notified bodies based on their capability to perform specific tests as well as on the basis of price. It is becoming common for manufacturers to partner with a certain Notified Body. Some Notified Bodies have built up a very good reputation and a certificate from them counts as a guarantee of high quality - about 10 Notified Bodies account for most of the high quality certifications in Europe. This was seen as a positive development.

At the same time though, German stakeholders expressed concern over the lack of expertise within the Notified Bodies in some countries. The fact that there are only a handful of Notified Bodies that participate in EU meetings only widens the gap of access to information, as those not participating have no information regarding new trends and developments. The need for supervision of notified bodies and establishing a platform for information exchange between notified bodies was also highlighted as an important area for improvement. Additional suggestions for increasing the competence of the Notified Bodies included setting a mandatory level of technical competence for new Notified Bodies, mandatory involvement in national committees for the relevant standards and mandatory participation in the NB group, where technical interpretations can be discussed and agreed.

Similarly, one of the main concerns expressed by the Notified Bodies in Italy is that the laboratories and the testing facilities of some of the NBs in other Member States – particularly the newer Member States - are not up to an acceptable standard. These NBs might therefore provide accreditation for products that would not be certified elsewhere in Europe. They would support the introduction of some harmonized minimum requirements for the appointment of Notified Bodies all over the European Union.

Stakeholders in the Netherlands consider that one of the most important issues affecting the efficient functioning of the Directive has been the differing quality of testing performed by the different notified bodies. Stakeholders consider that there are around eight to nine leading Notified Bodies in Europe that account for close to 10% of all the certification; these testing facilities that have solidified a reputation for high quality work. On the other hand, some other facilities have been known to work almost exclusively with third country manufacturers. Stakeholders noted that, especially in the case of patio-heaters, non-compliant but CE-marked products are often approved by the same notified body.

Dutch stakeholders also noted that, in certain cases, type tests are carried out in Asia whereas approval is issued in Europe. Due to the inconsistent quality of production and lack of surveillance, this might result in faulty products entering the EU market. While custom control verifies whether the products carry the appropriate certificates, these stakeholders believe that it has often been the case that certain fittings are changed in the product following the type testing certification. Where a fitting of the product is changed within the EU, regulation requires the product to be type tested again; this however is not the case in other countries such as China or India. Instead a surveillance certificate could be requested[123], as the quality of production and the assembly of the parts more precisely reflect the overall quality of the product. European companies apply strict quality control regulations to ensure the quality of the production.

Dutch stakeholders also noted the poor participation of NBs in the work of the NB-GAD group and thus the need to bridge the gap in knowledge that exists across all NBs. They also suggested that another area for improvement was the quality of testing and certification. Intra-authority cooperation and regular feedback from market surveillance authorities could also be utilized to identify those testing facilitates that approve products which do not meet the standard requirements.

Polish stakeholders noted that the four NBs in Poland do not specialize in certain products; they all test and certify all types of gas appliances. They noted that although Polish institutes participate in LABTQ, a consortium of EU laboratories that represents issues in relation to testing, the qualification requirements could be further strengthened.

The Slovenian NB that participated in the ex post evaluation indicated that, in their view, there are not sufficient options from their side to facilitate the improvement of the quality of appliances. There are currently no penalties for inconsistent production quality and, even though a manufacturer might be following the certification procedure, production quality might change.

Summary of Evidence

From the country case studies, it is not clear whether the above problems stem from a lack of common rules for accreditation of NBs, implementation or enforcement issues at the national level. Member States should be monitoring the performance of the NBs that they have designated, but it is unclear the degree to which this occurs across the EU. There is no concrete evidence to say that this does not occur, but there is clearly concern that if such monitoring is taking place it is not currently as effective as it should be.

Many of the newer NBs do not participate in EU meetings, therefore their identity and competences remains unclear; this also widens the gap of access to information, as NBs not participating have no information regarding new trends and developments. Furthermore, some respondents expressed the view that the current practices for

[123] Similar to, for example, the Conformity of Production (CoP) used for motor vehicles.

appointing NB could lead to risks for the quality and safety of appliances. For example, products bearing the CE marking and the certification of Notified Bodies have been found to be below the required standard of quality in the UK, leading to a recent recall of heating appliances. As these products were certified outside the UK, it was not possible for the UK authorities to take direct action against the NB.

Although little hard evidence is available, a number of respondents contended that there is market segmentation within NB, with some working mainly with the leading European manufacturers and others working almost exclusively with third country manufacturers. For their part, manufacturers indicated that they faced unfair competition due to the poor quality of some certified products.

Several respondents also expressed concern that the quality of gas appliances placed on the market may not be maintained at the same level of the type tested products. As a result, respondents indicated that responsible manufacturers, who carried out internal quality control, were being disadvantaged by others that cut costs by manufacturing test samples in such a way that they pass testing but who then did not maintain production to the same quality. It is not clear whether this problem stems from a failure of manufacturers to keep notified bodies informed of changes in their production processes or from a failure of notified bodies to undertake appropriate surveillance and checks that the manufacturer is maintaining and applying the approved quality system. This is the same issue highlighted by the Slovenian NB who indicated that they felt they did not have the ability to place sufficient sanctions on manufacturers whose production quality was inconsistent.

However, it is also important to note that an analysis (for the ***ex-post evaluation study***) of pass rates for compliance testing by country, indicates that NB performance does not vary at the national level, as shown in Table 5.2.

Table 5.2: Varying Pass Rates by Country	
Respondents with a compliance testing pass rate (for appliances) of	
less than 50% included those located in:	**more than 90% included those located in:**
Italy Poland (x2) UK	Italy (x2) Poland (x2) UK
Source: ***Ex-post evaluation report***	

5.3.3 Conclusions

Under the GAD, minimum criteria are established for the assessment of notified bodies (Annex V). These include the availability of personnel and equipment, technical competence and professional integrity of personnel, independence, maintenance of professional secrecy and liability insurance. The availability of personnel and equipment and the competence and integrity of personnel are to be periodically verified by Competent Authorities.

Council Decision 93/465/EEC (now repealed by the NLF Decision No 768/2008/EC) sets out the general approach to conformity assessment which indicates that Member States should use harmonised standards (EN 45000 series) as the basis for the conformity assessment of a notified body. These standards have been replaced progressively by standards in the ISO/IEC17000 series, which are referred to collectively as the 'conformity assessment body standards' and include:

- EN ISO/IEC 17025 General requirements for the competence of testing and calibration laboratories - the standard refers to 'recognition as a third party body' in a note to clause 4.1.4. However, it does not include any requirements on independence and the assessment of this aspect shall therefore be based on the relevant requirements in one of the three standards referred to below.

- EN ISO/IEC 17020 General criteria for the operation of various types of bodies performing inspection - the notified body shall meet the independence criteria for a Type A inspection body in the standard and the Independent Laboratory Accreditation Cooperation guidance on the standard shall be applied.

- EN 45011 General requirements for bodies operating product certification systems.

- EN ISO/IEC 17021 Conformity assessment - Requirements for bodies providing audit and certification of management systems.

Thus, prior to Decision No 768/2008, there was and continues to be a set of EU-wide standards for the notification of NBs, aimed at ensuring their competence. The concerns raised above though suggest that it is unclear whether the above standards have been adequately enforced at the national level, for example, through regular monitoring and auditing by Competent Authorities. In this respect, the greater emphasis placed on accreditation of NBs under the Decision may be important in ensuring that there is a more consistent competence across NBs and the mutual confidence between MS regarding the competence of conformity assessment bodies and thus in the certificates and test reports issued by them. However, we have been provided with no concrete evidence to indicate that NBs under the GAD do not meet the set standards or that there has been a failure of MS Authorities to carry out an appropriate level of surveillance and reassessment of NBs. Furthermore, the vast majority of the respondents to the Public Consultation were content with the existing arrangements for notified bodies. Even those that were in favour of a change to accredited in-house bodies (discussed in the next sub-section) did not identify any major shortcomings with the existing situation.

With respect to experience sharing and coordination of activities, the GAD itself places no formal requirements on notified bodies to participate in activities at the national or European level, although individual Member States may. If such requirements do apply in all Member States they are not be enforced given that the failure for newer NBs to participate in meetings is a common theme of concern for many stakeholders.

5.4 Potential Need for a Change in Certification Procedure

5.4.1 Requirements under the NLF

Under Regulation (EC) No 765/2008, 'accredited in-house bodies' may be used to carry out conformity assessment activities where it forms a part of implementing the procedures set out on conformity assessment Module C2: 'Conformity to type based on internal production control plus supervised instrument checks at random intervals' as set out under Decision N° 768/2008/EC.

At present, the GAD requires third party verification for both type testing and for production control. Theoretically, allowing this type of certification to be undertaken by in-house bodies may provide benefits to some manufacturers of gas appliances, particularly where production methods vary on a regular basis due to differences in the requirements for different end uses or where a manufacturer is involved in the production of more innovative products or in one-off products.

5.4.2 Evidence of a Problem under the GAD

No evidence has been identified to suggest that the current requirements of the GAD for the use of an independent third party notified body to undertake type approval and production surveillance are leading to problems for manufacturers. Only 10 of the 89 respondents to the Public Consultation considered that was a need to introduce 'accredited in-house bodies' and none provided any evidence to suggest significant shortcomings with the existing approach.

The costs of type approval testing are reported as being around a few thousand Euro by most stakeholders and are therefore not considered to be hindering manufacturers ability to place products on the market or indeed to undertake innovation in products. The only key concerns that may arise are with an expansion of the scope of the GAD, particularly where this covers products that cannot easily be transported to a testing facility (e.g. combined heat and power plant) or which are one-off or low volume products (e.g. gas fired kilns).

5.5 Concerns over Market Surveillance

5.5.1 Requirements under the NLF

Regulation (EC) No 765/2008, which is one of the NLF's implementing regulations, sets out requirements for market surveillance relating to the marketing of products.

Article 16 states:

> *2. Market surveillance shall ensure that products covered by Community harmonisation legislation which, when used in accordance with their intended purpose or under conditions which can be reasonably foreseen and when properly installed and maintained, are liable to compromise the health or safety*

> *of users, or which otherwise do not conform to applicable requirements set out in Community harmonisation legislation are withdrawn or their being made available on the market is prohibited or restricted and that the public, the Commission and the other Member States are informed accordingly.*
>
> *3. National market surveillance infrastructures and programmes shall ensure that effective measures can be taken in relation to any product category subject to Community harmonisation legislation.*

The regulation is intended to ensure, when not foreseen in other applicable EU legislation, that national authorities are given equivalent means of intervention and the necessary authority to intervene in the market to be able to restrict or withdraw non-compliant or unsafe products.

It is also aimed at ensuring cooperation between the internal authorities and the customs authorities controlling products entering the market from third countries and sets the framework for the exchange of information between national authorities and cooperation between them in the case of products on the markets of more than one Member State.

With regard to the exchange of information, the Regulation confirms that the RAPEX system is to be used as the appropriate information exchange system.

5.5.2 Evidence of a Problem under the GAD

The ***ex-post evaluation study*** identified a lack of market surveillance activities in certain countries, noting that this might increase the market presence and, therefore, the risks associated with the use of, faulty or inefficiently operating products. The importance of such activities is highlighted by the notifications made to RAPEX but also by some of the information provided by Member States. For example, the Polish Urząd Ochrony Konkurencji i Konsumentów (the central authority of the state administration responsible for the market surveillance of gas appliances) conducts over 100 product checks per annum. Among the most commonly noted product deficiencies is the lack of manuals and guidance, missing labels and missing CE markings. Such findings have raised a specific concern for Poland with respect to the black market in gas appliances. Often appliances such as cookers and water heaters that are manufactured outside the European Union are sold outside of shops, without any labels and certificates.

Similarly, consultees from the Netherlands noted that although third country imports are not predominant in the Dutch market, nonetheless there is a selection of heaters and patio heaters that are being imported from Asia and stakeholders indicated that these products have often been found to be non-compliant with the legal requirements.

Concerns over market surveillance were also raised by consultees in France, Germany, and Italy. They all noted that the importance of market surveillance and

EU wide information exchange should be emphasized, as a way to maintain quality control and enhance consumer protection. Several noted that it is one of the most pressing issues and that the level of surveillance in some cases, e.g. Italy, is currently inadequate.

In this respect, the market surveillance system in Belgium is acknowledged as one of the most efficient in Europe and is overseen by the Ministère des Affaires Economiques Administration de l'Energie. The positive impact of a strong market surveillance that exists in Belgium was emphasised by stakeholders as a way of reducing accidents.

5.5.3 Conclusions

The types of issues raised in relation to, for example, imports from third countries and a lack of surveillance action at a national level are all aspects which the market surveillance framework under the NLF is aimed at addressing. Furthermore, the analysis of RAPEX and ICSMS notifications highlights that these are only being made by a handful of countries, suggesting that there may not be as much an exchange of information as there could be.

Clearly, there are arguments to be made for improved market surveillance and a new Regulation is under preparation which should incorporate the relevant articles on market surveillance from Decision No. 768/2008/EC. However, comprehensive market surveillance across all gas-related products on the EU market would be a large undertaking. Furthermore, and as explored in Section 3, most accidents with gas-related products involve the inadequate installation or maintenance of gas appliances rather than the presence of unsafe products on the market. These aspects are discussed further in the analysis which follows in subsequent sections.

Finally, it is worth noting that only two of the 89 respondents to the Public Consultation highlighted that there was a lack of market surveillance in relation to gas appliances.

An overview of the issues raised above is presented in Table 5.3.

Table 5.3: Summary of Evidence and Extent of Potential Issues – Operation of the Current GAD			
Area of Concern	**Potential Issue**	**Evidence**	**Problem to be Addressed?**
Obligations of Economic Operators	The NLF introduces new obligations for to be placed on importers and distributors, due to the absence of such obligations and the identified need for these in order to ensure safety and a level playing field across the market.	The current GAD does not place any legal obligations on importers and distributors. Revision in line with the NLF would introduce such obligations. The majority of notifications to RAPEX concern imported products, particularly imports from China. This highlights greater safety concerns surround imports than products produced within the EU. In many cases it is clear that Authorities work (through the notified bodies) with the importer or the distributor to gain a voluntary withdrawal of the product from the market. In the majority of cases though, Authorities ban the sale of the product. It is not clear from consultation whether importers and distributors in this second set of cases do not check the safety or the products or that they meet the requirements of the GAD	Greater safety concerns surround imported products than those produced in the EU as indicated by RAPEX notifications. Placing legal obligations on importers and distributors may increase the degree to which they ensure products meet the essential requirements under the GAD
Traceability requirements	The NLF introduces traceability requirements to be placed on products.	The current GAD requires information on the notified body and the manufacturer to be placed on a product, thus enabling traceability. There is no evidence that these obligations need to be improved; only one case of an unknown source of a product giving rise to safety risks has been reported to RAPEX (in 2005)	No evidence of a problem to be addressed through revision of the current GAD
Accreditation of Notified Bodies	The NLF requires the creation of accreditation bodies and the accreditation of notified bodies, together with information sharing and participation in EU meetings	Concerns exist over the competence of some of the notified bodies currently operating under the GAD, including their lack of participation in information sharing and EU meetings. However, analysis of data on certifications indicates that the number of products failed, etc. is fairly similar across Member States. The fact that some NBs do not participate in information sharing activities or attend meetings, however, suggests that further action is required to ensure that they participate as anticipated	Evidence from consultation of problems regarding participation and information sharing
Potential use of accredited in-house bodies	The NLF introduces the potential for product manufacturers to use in-house accredited bodies	The GAD requires third party certification and no evidence of the need for such arrangements has been found	No evidence of a problem to be addressed
Market surveillance	The NLF introduces measures aimed at strengthening market surveillance and ensuring a greater level of cooperation with regard to products entering the market from third countries.	MS Authorities have identified the need for improved market surveillance as one of the most pressing requirements with respect to the NLF, particularly in relation to products being imported into the EU. This includes the need for greater market surveillance efforts in some MS, as well as for a greater level of information sharing	Evidence through expressed views of MS Authorities as to the need for greater market surveillance. It is also of note that only a small sub-set of MS have made notifications to RAPEX

6. APPROACH TO THE IMPACT ASSESSMENT

6.1 Introduction/Overview

6.1.1 Data Collection

As outlined above, a considerable effort has been made to obtain the most relevant and accurate data relating to, not only the gas appliance sector, but also any issues/problems (with particular focus on safety and barriers to trade) that have been experienced in the operation of the GAD. This data collection process has involved a two pronged approach through undertaking detailed desk research and consultation with relevant stakeholders.

The starting point for the assessment was the data contained in the ***ex-post evaluation report*** (which focused on the main product groups covered by the GAD). Throughout this study, the focus of the consultation has been on identifying existing problem areas (i.e. product groups for which there appear to be market failures or safety concerns or any other discrepancy between the fundamental goals of the Union and the existing situation) through discussions with those promoting major changes to the GAD rather than on collecting detailed data on markets.

A brief questionnaire was sent to over 130 named persons in relevant organisations on 13 February with a reminder (to those that had not responded) circulated on 28 February. 34 responses were received (mainly written responses with several follow-up interviews) as summarised in Table 6.1.

Table 6.1: Summary of Stakeholder Responses

Stakeholder Group	Number of Responses	Respondents	
MS Authorities and EFTA* National Authorities	19	Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Hungary, Luxembourg, Netherlands (2), Poland, Romania, Slovenia, UK; Norway and Switzerland	
Industry	12**	AEGPL	European LPG Association
		AFECOR	The European Control Manufacturers' Association
		CEFACD	European Committee and Manufacturers of Domestic Heating and Cooking Appliances
		EHI	European Heating Industry
		Elster GmbH	
		ELVHIS	Europäischer Leit-Verband der Hersteller von Gas-Infrarot- Hellstrahlern (European manufacturers of luminous radiant gas heaters)

Table 6.1: Summary of Stakeholder Responses			
Stakeholder Group	**Number of Responses**	**Respondents**	
Industry	12**	EURO-AIR	European Association of Air Heater Manufacturers
		FARECOGAZ	The European Association of Manufacturers of Gas Meters, Gas Pressure Regulators and associated Safety Devices and Stations
		FIGAWA	Firmen im Gas- und Wasserfach (German association of manufacturers and service providers in the gas and water field)
		HKI	National Association for Catering/Cooking Equipment (Germany)
		MARCOGAZ	Technical Association of the European Natural Gas Industry
		Mertik Maxitrol GmbH	
		ORGALIME	European Engineering Industries Association
		ÖVFG	Österreichische Verband für Flüssiggas (Austrian LPG)
		ÖVGW	Österreichische Vereinigung für das Gas- und Wasserfach (Austrian Association for Gas and Water Supply Industries)
		SEDIGAS	Asociación Española del Gas (Spanish Gas Association)
Other	3	SZU	Czech Testing Institute
		DVGW	Test Laboratory (Germany)
		CEN TC49	
Notes: * *Members of the European Free Trade Agreement (EFTA)* ** *Some of the industry responses represented the views of more than one organisation*			

In addition, information gathered via the European Commission's public consultation[124] (which finished on 11 March 2012) has been made available to the Consultants. The 89 responses provided have been critically analysed and reviewed with particular regard to assisting with the identification of potential issues which would benefit from revisions to the GAD. Furthermore, where respondents (to the public consultation) had identified significant potential issues, further efforts were made to contact them by phone and email – particularly where the respondents had not previously been contacted by the Consultants. This has led to a further five useful contributions to the study.

[124] *Pressure equipment and gas appliances - Public Consultation on GAD revision* http://ec.europa.eu/enterprise/sectors/pressure-and-gas/documents/gad/public-consultation/index_en.htm

6.1.2 Identification of Issues

The Commission's Roadmap[125] for the review of the GAD sets out what it views as the main issues arising with the current GAD. These include issues raised by stakeholders in the context of the ***ex-post evaluation study*** of the GAD and issues identified by stakeholders as part of the Commission's consultation. The main issues identified are:

a) Concerns relating to the functioning of the internal market. These include concerns arising due to a lack of clarity or the misinterpretation of the current GAD, with this affecting its functioning;

b) Concerns over potential safety risks that may exist at present from the fact that not all products posing gas-related risks fall within the scope of the current Directive; and

c) Concerns over the current operation of the Directive with respect to notified bodies and enforcement aspects, with this including the types of horizontal legislative issues addressed by the New Legislative Framework (the NLF) and Decision 768/2008/EC.

Sections 3 to 5 of this report provide an initial examination of the above issues, as well as the primary issues of concern that emerged from the ex-post evaluation study. The sections provide an overview of each of the above sets of issues, and an assessment of whether or not they can be identified as problems that needs to be addressed through revision of the GAD. This discussion also draws on the Impact Assessment for alignment with the NLF, the discussion in the Roadmap and information provided by the Working Group GAD Revision.

We have also undertaken further consultation specific to this study with the aim of clarifying whether or not the identified issues are actually resulting in problems within the internal market that need to be addressed. This has included consultation with Competent Authorities, representatives of Notified Bodies, industry associations and individual companies/manufacturers of gas appliances. We have also carried out further literature review and extensive searches for additional information – as well as reviewing the responses to the public consultation.

Where potential issues have been identified, these have been taken into account in developing the policy options.

[125] DG Enterprise (2011): **Roadmap for Review of Directive 2009/142/EC on appliances burning gaseous fuels (GAD)**, Version 1 dated June 2011.

6.1.3 Policy Options

The terms of reference for this study indicated that consideration could be given to the five generic options presented in the Commission's Roadmap for the revision of the GAD:

- Option 1: Baseline (i.e. do nothing);
- Option 2: Alignment with the New Legislative Framework;
- Option 3: Alignment and technical updating;
- Option 4: Alignment, technical updating and widening of the scope; and
- Option 5: Alignment, technical updating and full harmonisation.

In the absence of any other options being identified during the course of the study, consideration was given to these options. It should be noted that these are essentially packages of measures which increase in terms of the level of revision required as one moves from Option 2 to Option 5 – and these are discussed in more detail in Section 7.

6.1.4 Approach

The approach to the Impact Assessment work itself is based on the following tasks:

- ***Identification of impacts*** that are relevant to each policy option and of the key stakeholders who will be affected;
- ***Initial assessment*** of the importance of these impacts based on their expected magnitude and on the likelihood of them occurring;
- ***In-depth analysis*** of the most significant impacts, both positive and negative, with this involving quantification to the degree possible. However, this detailed analysis was only undertaken for those policy options which are considered to respond to identified 'problems';
- ***Comparison of the policy options***, with this including consideration of the variation in impacts, the magnitude of the different impacts and their distribution across different stakeholder groups; and
- ***Identification of the preferred policy option***.

This work will draw on the general approach set out in the Commission's Impact Assessment Guidelines[126]. The assessment provides preliminary information on each of the options and clear and transparent information on the impacts of moving to Options 2 to 5 compared to the baseline of no revisions to the current GAD (should

[126] EC (2009): **European Commission, Impact Assessment Guidelines** (SEC(2009)92). Available at http://ec.europa.eu/governance/impact/commission_guidelines/docs/iag_2009_en.pdf

each option be considered viable). The analysis was carried out at the margin, i.e. it provides an assessment of the net changes in costs and benefits compared to the baseline scenario. All assumptions underlying estimates of the net changes are clearly specified, and is accompanied by sensitivity analysis where they may be important to the end ranking of options and hence to the identification of the preferred option.

The methodological framework underling the analysis is a cost-benefit analysis, with the aim being to determine whether the proposed revisions under each Option would deliver net benefits (i.e. greater gains to society than any increase in costs). Although the intention is to provide a quantitative assessment of both costs and benefits (e.g. reduction in incidents or gains from increased harmonisation of markets), this is difficult due to the general paucity of data. Where it is not possible to quantify a particular impact, scoring methods can be used as a surrogate indicator of effects. Such qualitative information has been combined with quantitative data to provide an overarching assessment of whether an Option delivers net benefits.

6.2 Identifying Appropriate Impact Categories

The aim here is to establish the types of impacts that can be expected to occur under each policy option and of the stakeholders affected. This is achieved by reviewing the comprehensive checklist of potential economic, environmental and social impacts set out in Tables 1-3 of the Commission's Impact Assessment Guidelines and identifying any additional impacts. Both direct and indirect impacts are considered.

Based on the information collected, as a preliminary guide, the types of impacts that might be the most relevant to revision of the GAD have been identified (see Table 6.2 next page). Environmental impacts have not been included in the list of relevant impacts; they are not expected to be significant as none of the policy options are aimed at addressing aspects of gas appliances or changing their technical requirements (such as emissions of gases) in a manner which would affect their environmental impacts, e.g. through specific efficiency requirements.

It is clear that there are potential trade-offs involved across the above impact categories. In particular, business may incur an increase in operating and administrative costs, but these must be offset against any increases in public health and safety gains through better regulation of gas appliances and potentially other gas using products. Synergistic effects in terms of the additional costs of moving from one option to another may be realised. For example, the costs of combining different changes in the technical requirements or scope of the options may together be less than the sum of the costs of these changes if considered in isolation (this will be an important consideration in the more detailed assessment work undertaken below).

Table 6.2: Pre-screening of the Relevance of the Impacts	
Impact type	**Relevant?**
Economic impacts	
Functioning of the internal market and competition	Relevant
Competitiveness, trade and investment flows	Possibly Relevant
Operating costs and conduct of business/SMEs	Relevant
Administrative burdens on businesses	Relevant
Public authorities	Relevant
Property rights	Not relevant
Innovation and research	Possibly Relevant
Consumers and households	Relevant
Specific regions and sectors	Not relevant
Third countries and international relations	Possibly Relevant
Macroeconomic environment	Not relevant
Social impacts	
Employment and labour markets	Possibly Relevant
Standards and rights related to job quality	Possibly Relevant
Social inclusion and protection of particular groups	Not relevant
Gender equality, equality treatment and opportunities, non-discrimination	Not relevant
Individuals, private and family life, personal data	Not relevant
Governance, participation, good administration, access to justice, media and ethics	Not relevant
Public health and safety	Relevant
Crime, Terrorism and Security	Not relevant
Access to and effects on social protection, health and educational systems	Not relevant
Culture	Not relevant
Social impacts in third countries	Not relevant

With respect to the valuation of impacts on health and safety, where changes in the number of incidents or poisoning cases (e.g. if measures would affect CO emissions) can be calculated, then it should be possible to generate a monetary valuation of these impacts. The monetary values per fatality, injury or poisoning case (where this does not involve a fatality avoided) are drawn from figures used in other Commission studies, for example, from CAFE[127]. Justification will be provided for the choice of value, although again sensitivity analysis can be undertaken.

Note that a stepwise approach to the assessment of impacts will be undertaken, with each of the key changes identified in Section 3 for each of the Options assessed individual and then in conjunction with the overall requirements of each Option. This will allow us to identify those elements of each Option which deliver the greatest net benefits.

[127] See the development of the Cost Benefit Analyses framework for the CAFE (Clean Air For Europe) programme: http://www.cafe-cba.org/reports-on-developing-the-cba-framework/

6.3 Comparison of the Policy Options and Identification of the Preferred Option

The comparison of options starts with a summary of all significant impacts, positive and negative, when compared against the baseline scenario (see Section 9)

In assessing the relative performance of the options against each other, the Terms of Reference for this study set out criteria that are to be used in the comparison of the options as part of the impact assessment. The most important criteria are those which are directly related to achieving the objectives of the GAD, followed by consideration of the other criteria, which include:

- **Effectiveness of the policy option**: the extent to which options achieve the objectives;
- **Efficiency of the policy option**: the extent to which objectives can be achieved for a given level of resources/at least cost (cost-effectiveness); and
- **Coherence of the policy option**: the extent to which options are coherent with the overarching objectives of EU policies, strategies and priorities, and the extent to which they are likely to limit trade-offs across the economic, social, and environmental domain.

In addition to the above criteria, we believe that a further criterion (or criteria) aimed at addressing distributional effects should also be adopted. This would include consideration of the degree to which the impact would fall on large versus small companies, whether SME companies would be placed at a relative disadvantage, and whether there would be implications for companies located in particular regions of the EU. Consideration of such effects may be especially important to identifying provisions that could be included within the revised GAD to mitigate against specific negative effects.
By way of example, it may be possible that specialised small-run products (for example small clay firing ovens) manufactured by SMEs and used by artisans or hobbyists would attract some reduction in GAD obligations.

The comparative assessment provides an indication of the trade-offs involved in selecting one option over another. This information will be used to generate a ranking of the options against the above criteria and overall. This will take into account:

- the performance of the different policy options in achieving the defined policy objectives;
- the balance between positive and negative impacts associated with the preferred option and possible alternatives;
- the distributional effects of the preferred option; and
- the sensitivities of the choice of preferred option to key uncertainties.

7. THE POLICY OPTIONS

7.1 Overview

As noted by the Commission, the general aims of any revisions to the GAD would be to:

(1) ensure that all gas appliances within its scope will be subject to the same regulatory framework, as regards the gas related risks; and

(2) improve enforcement of the GAD through clarifying the importer and distributor obligations, introducing the traceability provisions, the provisions on the assessment and notification of notified bodies, and the enhanced cooperation obligations in the context of the revised market surveillance and safeguard procedures.

The terms of reference for this study indicated that consideration could be given to four generic options presented in the Commission's Roadmap for the revision of the GAD in relation to the current baseline (Option 1). It should be recognised that they are essentially packages of measures which increase in terms of the level of revision required as one moves from Option 2 to Option 5.

Option 2: Alignment with the New Legislative Framework: the GAD is aligned with the NLF but no modifications are made in relation to clarity or scope.

Option 3: Alignment and technical updating: the GAD is not only aligned with the NLF but also the identified provisions requiring updating and streamlining are modified; this option could be completed by introduction of the CE marking for 'fittings'.

Option 4: Alignment, technical updating and widening of the scope: the GAD is aligned with NLF, updated and streamlined and the scope is extended by including new products (appliances) fuelled by gaseous fuels for which concrete barriers to trade could be identified. This option could include sub-options which either included or did not include the introduction of the CE marking for 'fittings'.

Option 5: Alignment, technical updating and full harmonisation: the GAD is aligned with the NLF, it is technically updated and the scope is widened to cover not only all gas using products but also 'components' designed to be parts of end user gas installations.

Table 7.1 provides a summary of the potential for each of these options to address the potential issues (as first identified in the First Interim Report). As can be seen from Table 7.1, there are commonalities but also important differences across the options with respect to the degree to which they could address the different problems (if so demonstrated) and the associated causes of these.

Table 7.1: Potential Issues and Possible Causes Addressed by each Option					
Potential Issue	**Possible Cause**	**Option 1**	**Option 2**	**Option 3**	**Options 4 and 5**
Inconsistencies and lack of clarity	Guidance sheets require updating			✓	✓
	Language translations lead to misinterpretation			✓	✓
	Multiple legislation leads to lack of clarity (e.g. BED and potentially CPD/CPR)			✓	✓
Lack of harmonised market for products that may pose a gas-related risk	Products (components) posing safety risks lie outside the GAD				✓
Non-compliant products reach the market	Importers and distributors do not check products adequately		✓	✓	✓
	Market Surveillance limited to national territory and need for greater information sharing		✓	✓	✓
Quality of Notified bodies	Differences in assessment of competences		✓	✓	✓
	Non participation in coordination activities, no application of guidelines. Results in unfair or incoherent assessment practice		✓	✓	✓

The consultants have also been asked to identify and examine other packages of measures in addition to the above. These sub-options are described in the sections which follow.

7.2 Option 1: Baseline

The baseline (Option 1) represents no policy change and, as such, the GAD is neither aligned with the NLF, nor modified and the scope remains the same. The key elements of the baseline have been discussed in Sections 3 4, and 5 and are summarised in Table 7.2 (overleaf).

Table 7.2: Description of the Baseline (Option 1)				
Potential Issue	**Potential Consequences**	**Potential Positive Effects**	**Potential Negative Effects**	**Affected Parties**
		if action taken to address potential issue		
Non-compliant products are illegally placed on the market				
Importers and distributors do not check products adequately	Danger for health and safety of installers and users (as unsafe products may enter market); distortion of internal market and unfair competition	Creation of a more level playing field; Reduction in non-compliant goods reaching the market and hence in surveillance costs placed on authorities; potential reduction in incidents associated with non-compliant products illegally placed on the market	Increase in product prices-consumers; potential reduction in imported goods – consumer choice	Importers, distributors, authorities, professionals and consumers
Market surveillance competence is limited to national territory and there is a need for greater information sharing	Potential risks for health and safety to installers and users; distortion of internal market and unfair competition	Reduction in non-compliant, imported goods illegally reaching the market; creation of a more level playing field across companies; potential reduction in incidents associated with imported goods	Increase in costs to authorities, potential increases in costs for notified bodies or other impacts (e.g. loss of business, etc.)	Authorities, notified bodies, consumers, professionals, manufacturers
Competences of Notified Bodies				
Non-participation in coordination activities and lack of harmonized accreditation requirements	Potential risks for health and safety of installers and users; distortion of internal market and unfair competition	Reduction in non-compliant goods reaching the market; creation of a more level playing field across companies; potential reduction in incidents; reduction in market surveillance costs	Increase in costs to certain manufacturers, impacts on notified bodies, impacts on authorities	Notified bodies, authorities, manufacturers, consumers and professionals
Lack of a harmonized market for gas-related products				
Components lie outside the scope of the GAD	Lack of harmonized standards specific to gas-related risks	Potential reduction in incidents; increased business for notified bodies	Increase in costs to certain manufacturers, importers, and distributors, impacts on notified bodies, impacts on authorities	Manufacturers, importers, distributors, notified bodies, authorities, consumers

Table 7.2: Description of the Baseline (Option 1)				
Potential Issue	**Potential Consequences**	**Potential Positive Effects**	**Potential Negative Effects**	**Affected Parties**
Inconsistencies, lack of clarity, misinterpretation				
Guidance sheets require up-dating	Additional costs/time for manufacturers and authorities	Creation of a more level playing field	Increase in costs to certain manufacturers, importers, and distributors	Manufacturers, importers, distributors, notified bodies, authorities, consumers
Misinterpretation due to varying language translations	Additional costs/time for manufacturers and authorities	Creation of a more level playing field	Increase in costs to certain manufacturers, importers, and distributors	Manufacturers, importers, distributors, notified bodies, authorities, consumers
Multiple Directives potentially applicable – e.g. BED and energy efficiency	Lack of clarity as to which energy efficiency standards apply, leading to additional costs/time for manufacturers and authorities	Reduction in costs to manufacturers, importers and distributors, reduction in costs for authorities	Potential impacts on notified bodies	Manufacturers, importers, distributors, notified bodies, authorities

7.3 Option 2: Alignment with the NLF

7.3.1 Aims of the Option

The purpose of the New Legislative Framework (NLF) is to strengthen the effectiveness of the European Union's legislation relating to product safety, implementation mechanisms and to ensure a greater consistency throughout all the different economic sectors. The NLF also supports the European Union's policy of simplifying regulations and reducing the administrative burden for both National Authorities and industry.

Alignment of European Directives with the NLF is designed to remove any remaining obstacles to the free circulation of products and therefore improve trade between EU Member States. It also aims to reduce issues relating to product safety through improvement in market surveillance rules, to better protect professionals and consumers from unsafe products. The NLF also aims to enhance the quality of the conformity assessment of products through the use of stronger, clearer rules on the requirements for the notification of conformity assessment bodies (testing, certification and inspection laboratories) including the increased use of accreditation. In order to ensure the quality and, hence, safety of products, the NLF also clarifies the meaning of CE marking. In addition, CE marking is to be protected as a trade mark, which will give authorities and competitors additional means to take legal action against abuse. The NLF establishes a common legal framework for industrial products in the form of a toolbox of measures for use in future legislation. This includes provisions to support market surveillance and the application of CE marking. It also includes definitions of commonly used terms in product legislation (i.e. manufacturer, economic operator, conformity assessment body, etc.) but are sometimes used differently at present and procedures that will allow sectoral legislation to become more consistent and easier to implement.

The key provisions of the existing GAD that have been identified as a result of alignment with the NLF include:

- alterations to certain definitions included in the current GAD (e.g. to the definitions of 'accreditation', 'national accreditation body', 'conformity assessment', 'community harmonisation legislation' and 'putting into service');
- manufacturers are required to keep technical documentation and the EC declaration of conformity for [**10 years]** after the appliance or the fitting has been placed on the market;
- manufacturers are also required to keep the EC declaration of conformity and the technical documentation at the disposal of national surveillance authorities for [**10 years]** after the appliance or fitting has been placed on the market; and
- economic operators are required to present information relating to any other economic operator that has supplied them or they have supplied with an appliance or fitting for a period of [**10 years]** after they have supplied or been supplied with that appliance or fitting.

7.3.2 Defining the Option - Comparison of NLF with Revised GAD

Annex 1 provides a summary of the outcomes of a technical exercise carried out by Ad-hoc WG GAD Revision Group[128] (WG GAD Rev) on how each Article of the NLF could be combined with the current GAD (2009/142/EC) to form a revised version of the GAD. In the course of this exercise, various other revisions were proposed and these are included (and are considered as part of the other options under consideration in subsequent sections). It should be noted that this document is only a draft and does not bind the European Commission or its services and does not prejudge the final legal text.

Table 7.3 outlines the potentially significant alterations identified to the GAD as a result of the proposed alignment with the NLF – as discussed further below.

Table 7.3: Summary of (Significant) Proposed Changes after Alignment with NLF

NLF Article	Revised GAD – How the NLF Article has been adopted
Article R2: Obligations of manufacturers	Article R2 is included in the revised GAD. *Point 3* – manufacturers are required to keep technical documentation and the EC declaration of conformity for **10 years** after the appliance or [fitting] is placed on the market. *Point 5* – the term 'document' is replaced by 'instructions'.
Article R3: Authorised representatives	Article R3 is included in the revised GAD. *Point 2a* – the EC declaration of conformity and the technical documentation should be kept for **10 years** after the appliance or [fitting] was placed on the market and made available to national surveillance authorities.
Article R21: Accredited in-house bodies	Article R21 is included in the revised GAD. **Note**: it was to be examined whether such bodies will be allowed in the future GAD – only module C2 is provided for in the current GAD.
Article R31: Procedure for dealing with products [appliances or [fittings]] presenting a risk at national level	Articles R31 & R32 replace Article 7 of the current GAD. *Point 7* – a time period of **two months** has been included in the appropriate part of the text.
Module B: EC-type examination	Module B of Annex II replaces Point 1 of Annex II of the current GAD. The requirements relating to technical documentation replaces part of Annex IV of the current GAD. **Comment** – Reflection is required on some aspects as the new module B contains three possibilities. *Point 2* – Comments are made relating to Point 2 of Module B: 1) Could Point 2 (of the NLF) be deleted? . Industry and NBs are invited to clarify what their needs are. There might be inconsistencies between Point 2 and Point 4.

[128] Informal Working Document – Outcome of the WG GAD Rev of 22/06/2011 and available on the CIRCA website.

Table 7.3: Summary of (Significant) Proposed Changes after Alignment with NLF	
NLF Article	**Revised GAD – How the NLF Article has been adopted**
Module B: EC-type examination (*continued)*	2) The most stringent seems to be the first indent. The majority of the group supports the most stringent option. The question is whether it is possible to delete options from this module or whether the complete module is taken from the NLF. UK and EHI supported the suggestion to keep the complete text of the NLF. *Point 3* – One comment indicates that there is a '**possible problem of terminology, which is to be examined**'. Another comment indicates that '**the group doesn't see any problems with the wording**'.
Module C2: Conformity to type based on internal production control plus supervised product checks at random intervals	Module C2 of Annex II replaces Point 2 of Annex II of the current GAD. *Point 3 (Product checks)* – inclusion of part of Point 2.3 of Annex II of the current GAD relating to onsite checks of appliances or [fittings] undertaken by notified bodies at intervals of '**one year or less**'. Also, the addition of a choice (by the manufacturer) between the accredited in-house bodies and notified bodies. Also, where a sample does not conform to the acceptable quality level, the body shall take appropriate measures, ... '**to prevent the placing on the market of the concerned appliances or [fittings]**' is added from the current GAD. *Point 4 (Conformity marking and declaration) of conformity)* - the wording in bold has been added: ' The manufacturer shall **affix the CE marking and the inscriptions provided for in Point 2 of Annex III**...'.
Notes: *The italicised writing in the second column refers to the point/paragraph in the NLF.* *It should be noted that the Informal Working Document refers to 'components' on the basis that the scope of the GAD would be expanded to include items that are located between the gas delivery point and the appliance. This possibility is considered under Option 5 (see Section 7.6). For clarity, the term 'fittings' has been used here to reflect the current scope of the GAD.*	

7.3.3 Alignment with the NLF – Preliminary Considerations

As outlined above, there are a number of changes that would result from aligning the existing GAD to the NLF. The key alterations to the GAD as a result of the alignment are discussed below along with the potential implications for stakeholders. Particular attention has been given to the views expressed in the Public Consultation.

Requirement to Keep Technical Documentation and Declaration of Conformity

The informal working document, providing a revised version of the GAD aligned to the NLF, requires manufacturers to keep technical documentation and the EC declaration of conformity for a period of 10 years after the appliance or fitting has been placed on the market. It must be available on request by national surveillance authorities. Similarly, other economic operators are required to present information relating to any other economic operator that has been supplied to them or that they have supplied with an appliance or fitting for a period of 10 years after that supply.

The current GAD does not provide a specific timescale for which this documentation should be kept by the manufacturer, stating "*the manufacturer or his authorised*

representative established within the Community must affix the CE marking to each appliance and draw up a written declaration of conformity. This declaration may cover one or more appliances and must be kept by the manufacturer".
Therefore, specifying a time period over which the technical and declaration of conformity documentation should be kept may potentially lead to an increase in costs for certain manufacturers that currently keep this documentation for less than 10 years (e.g. because of increased storage and/or administration costs). However, specifying what the mandatory timeframe is will provide clarification for manufacturers and ensure that a consistent approach is adopted by all relevant economic operators. It should also help assist with the prevention of any non-conformity or safety issues that may arise during the initial 10 years on the market.

Procedure for Dealing with Appliances or Fittings Presenting a Risk at National Level

Article 7 of the existing GAD outlines the procedure that should be undertaken when a potential safety risk relating to an appliance is identified at the national level. This article requires Member States to take all appropriate measures to withdraw these appliances from the market and prohibit or restrict their placement on the market.

The suggested revisions to the GAD as part of it being combined with the NLF is for Article 7 to be replaced with Articles R31 and R32 of the NLF. Similar provisions would apply under these new articles as those contained in the current GAD. However, the new NLF article provides greater detail regarding the requirements of economic operators should an appliance or fitting demonstrate safety risks at a national level.

These provisions are not considered to result in an improvement in safety compared to the existing situation because the fundamental safety aspects remain the same within both the current and new versions. However, the NLF revision does provide clarification and details of the contingency measures that are to be undertaken if the economic operator fails to take appropriate corrective action, which may assist with improving the functioning of the internal market.

However, a new Regulation on Market Surveillance is under preparation, which should incorporate the relevant articles on market surveillance from Decision No. 768/2008/EC. As such, it should not be necessary any longer to integrate articles R31 to R34 into sector specific legislation[129].

Introduction of Accredited In-House Bodies

In accordance with Regulation (EC) No. 765/2008, 'accredited in-house bodies' may be used to carry out conformity assessment activities for the undertaking of which it forms a part for the purpose of implementing the procedures set out on conformity assessment Module C2: 'Conformity to type based on internal production control plus supervised instrument checks at random intervals' in Decision No. 768/2008/EC.

[129] e-mail from DG Enterprise Unit C1 (forwarded to RPA on 7 June 2012).

The existing GAD requires EC-type examination to be undertaken by a third party notified body. Module C2 of the revised GAD, which incorporates the requirements of the NLF with the existing GAD, provides the gas appliance/fitting manufacturer with the choice of selecting either an accredited in-house body or a notified body to undertake conformity assessment checks. However, it is noted in the Informal Working Document of the revised GAD that the option of whether a manufacturer can choose between an accredited in-house body and a notified body (based on the provisions of the NLF) has not yet been finalised for inclusion in the revised Directive.

It is also important to note that both notified bodies and accredited in-house bodies are required to meet various standards to prove their competence and independency when undertaking product conformity checks. These standards include EN ISO/IEC 17020 (*General criteria for the operation of various types of bodies performing inspection*) and EN 45011 (*General requirements for bodies operating product certification systems*). EN ISO/IEC 17020 specifies general criteria for the competence of impartial bodies performing inspection as well as independence criteria. EN 45011 specifies the general requirements that a third-party operating a product certification system needs to comply with if it is to be recognised as competent and reliable. The description of the standard also states that whilst it relates to third-parties providing product certification, many of its provisions may also be useful in first and second party product conformity assessment procedures. Therefore, both third-party notified bodies and (if selected) accredited in-house bodies certifying gas appliances would be required to comply with these standards.

As part of the public consultation, stakeholders were asked to indicate whether they believe there is a need to introduce accredited in-house bodies into the GAD. As indicated in Table 7.4, two thirds of respondents (68 of 89 or 76%) do not think that there is a need to introduce accredited in-house bodies into the revised GAD. Analysis of the responses received from the different stakeholder groups (i.e. Member States, Industry, Notified Bodies and Others) indicates a similar trend to that presented in Table 7.4 whereby the vast majority of respondents from each group do not consider there to be a need to introduce accredited in-house bodies.

Table 7.4: In your opinion is there a need to introduce 'accredited in-house bodies'?

Response	Number of Responses	% of Responses
Yes	10	11
No	68	76
No opinion	11	12
Total	**89**	**100**

A key issue raised by a number of respondents relates to the independency of conformity assessment when undertaken by third party notified bodies, thus ensuring that the products are impartially assessed and those that are deemed unsafe or do not conform to the Directives requirements are not granted access to the EU market. One respondent indicated that *"the certification procedure according to the conformity*

assessment procedure of the GAD, consisting of the type approval and production surveillance by a notified body has been established and proven to work well regarding protection and safety functions. By acceptance of accredited in-house bodies the neutral view by independent bodies is not given. Without a third party certification pro-active market surveillance would be required". Another noted that *"replacing a notified body by an accredited in-house body in module C2 to assess the conformity of a gas appliance does not offer satisfactory guarantee of safety for persons and property"*.

Therefore, the introduction of accredited in-house bodies could potentially result in an increase in non-conforming and/or unsafe gas appliances/fittings entering the EU market because the impartiality of the notified body may be lost if accredited in-house bodies are used. Accredited in-house bodies will not offer the same degree of independence (as notified bodies) because the conformity assessment is undertaken by the manufacturer of the product. In certain situations the manufacturer may be pressurised into accepting a product meets the required quality level when this is not the case in reality, which may potentially lead to a detrimental impact on public health and safety. One respondent suggested that *"accredited in-house bodies might be too close to the product development and certification. To keep the current level of safety under the GAD, it is important to have another outside view on the safety concept applied"*.

Allowing the manufacturer of a gas appliance/fitting a choice between an accredited in-house body and a notified body to undertake appliance and fitting checks may negatively impact the functioning of the internal market. As noted by one respondent *"the consequence of in-house bodies is that gas appliances will appear on the market with and without the ID number of a notified body. This will be confusing for the market and will make market surveillance more difficult. When gas appliances and* [fittings] *appear on the market with and without CE marking the confusion will be even greater especially for consumers. It is often mentioned that the CE marking is not a consumer mark. In my opinion this is not a representation of the actual situation. Consumers are often advised by national authorities and consumer organisations to buy only products which bear the CE marking for the reason that those products shall comply with the essential health and safety requirements of the European Directives. Therefore consumers are often very much aware of the importance of the CE mark"*. Therefore, the inclusion of a notified body identification number with the CE mark would occur in some cases, whereas no notified body identification number would appear if an accredited in-house body was used for undertaking the conformity assessment. This would create an inconsistency on the EU market and potential confusion for consumers. Also, the risk of problems with the independence of the surveillance of the production may lead to a distortion of competition.

It should be noted that Orgalime, as indicated in a position paper of June 2011[130], does not support the introduction of accredited in-house bodies within the future text of the

[130] Orgalime Position Paper: Revision of the Gas Appliance Directive (GAD) 2009/142/EC - http://www.orgalime.org/positions/positions.asp?id=408.

GAD, since this new possibility foreseen by the NLF is considered inappropriate in the context of the GAD. Orgalime also suggests that *"it is important to remember that the absence of a notification number of the accredited in-house body besides the CE marking would rather complicate the implementation of the new text of the Directive"*.

Also, market surveillance would be more difficult as a reference number for the organisation undertaking the conformity assessment would not be present on the product (in the case of accredited in-house bodies). This reduced traceability may also impact consumer health and safety if a product on the EU market is found to not conform to the quality requirements of the conformity assessment procedure. For example, this may increase the time period between when a product is found to have an issue and any alterations of the product to ensure its safety or its removal from the market.

Another respondent indicated that they do not agree with the proposal to introduce the use of accredited in-house bodies into the GAD noted that *"independent bodies serving manufacturers in general will maintain a broader experience; this will be beneficial in order to maintain the best safety level of all gas appliances. Experience from one part of the industry can be used in other parts, so the learning curve will be better. Especially for new developments that are not yet available in harmonised standards in certain parts of the industry but which are common already in other parts"*. Therefore, the experience obtained through notified bodies work with different manufacturers in different sectors may help ensure the highest safety levels are maintained for gas appliances. This may also assist manufacturers in that notified bodies are able to offer advice and draw on experiences attained when working with other industry sectors.

There would also be a potentially significant cost element of establishing accredited in-house bodies within organisations (not only in terms of infrastructure and equipment but also personnel). This is likely to be particularly significant for SMEs. One respondent suggested that *"SMEs might have difficulties to build up sufficient and competent 'accredited in-house bodies', and it would be difficult to draw the line between SMEs and big enterprises"*.

However, no evidence has been identified to suggest that the current requirements of the GAD for the use of an independent third party notified body to undertake type approval and production surveillance are leading to problems for manufacturers.

Altering the Safety Philosophy of the GAD

The existing GAD (under Annex II) requires the EC-type examination of products to always be carried out by checking that an appliance, representative of the production envisaged, meets the applicable provisions of the Directive. This includes both the examination of the design documentation and verification of the type.

However, according to Module B of the NLF (768/2008/EC), EC-type examination may be carried out in one of the following three ways:

- Examination of a specimen, representative of the production envisaged, of the complete appliance or fitting (production type);
- Assessment of the adequacy of the technical design of the appliance or the fitting through the examination of the technical documentation and supporting evidence, plus examination of specimens, representative of the production envisaged, of one or more critical parts of the appliance or the fitting (combination of production type and design type); or
- Assessment of the adequacy of the technical design of the appliance or the fitting through examination of the technical documentation and supporting evidence, without examination of a specimen (design type).

The introduction of these EC-type examination provisions allows a choice regarding which of the provisions should be selected and used to assess the product's conformity to type. This introduction would, therefore, lead to movement away from the Directive's current safety philosophy, which requires the product itself to undergo examination. There is the possibility that the level of consumer safety in relation to gas appliances may be reduced as, in some cases, only the technical documentation is assessed rather than the product itself. The adequacy of this situation is questionable considering that certain issues with a product may only be identifiable on inspection/assessment of the actual appliance/fitting itself.

As part of the public consultation, stakeholders were asked to indicate whether the existing safety philosophy (in the current GAD) should be maintained or whether this should be modified as a result of alignment with the NLF. As indicated in Table 7.5, 81% of respondents (or 72 of 89) would prefer to see the safety philosophy in the current GAD maintained. Only 14 of the 89 respondents (equivalent to 16%) thought the GAD should be modified using the provisions from Module B of the NLF. Assessment of responses by stakeholder group (Member States, Industry, Notified Bodies and Others) indicates that in each case the majority of respondents would prefer the current safety philosophy to be maintained.

Table 7.5: Which of the following options best describes your opinion: 'The current safety philosophy should be modified' (Y) or 'The current safety philosophy should be maintained' (N)

Response	Number of Responses	% of Responses
Yes (modify safety philosophy)	14	16
No (maintain safety philosophy)	72	81
No opinion	3	3
Total	**89**	**100**

A number of respondents that would like the current safety philosophy to be maintained noted that *"the current system ensures that all appliances are built to the same standard"* and *"based on the existing conformity and certification procedure a high safety level has been established"*. Another respondent indicated that *"there are several objections regarding the choice between these three procedures* [in the NLF]. *First of all, it is unclear who shall make this choice* [between the three options]*, the*

notified body, the manufacturer, or shall it be the outcome of negotiations between the two. Furthermore, there are no conditions or criteria given for making the choice. This makes it possible for the manufacturer and the notified body to choose the least stringent option in every situation. Notified bodies operate on a commercial market and are in competition with each other, therefore it can be expected that they will choose the less costly procedure which probably will be the less stringent one. Moreover, the third option in which only the technical documentation shall be assessed, without any testing of the appliance or parts of the appliance, cannot provide sufficient proof that the appliance complies with the essential requirements of the GAD". This indicates that if the three points from the NLF were to be included in the revised GAD then some form of clarification or guidance would be needed to ensure a consistent procedure is undertaken across the EU. A number of respondents indicated that only the first, most stringent option should be maintained as *"manufacturers in Europe are used to this concept and a unique procedure that applies indistinctly and clearly for all manufacturers will prevent uncertainty and distortion of the markets"*.

Also, having the choice of three options may mean that the simplest, least stringent and (most likely) least expensive option will always be selected. The adoption of this option, which involves the assessment of technical documentation without checking the product, in the majority of cases may mean that certain product issues are missed that can only be identified if the product itself was tested. This may result in an increase in the number of non-conforming or unsafe products entering the EU market. One respondent suggested that *"examination of the concrete product is the only way to guarantee that stated requirements have been met"*. Another indicated *that "our 50 years of experiences in certification shows that it is not possible to examine the type only based on technical documentation"*. Another respondent noted that *"the GAD safety philosophy has a proven track record and should not be diluted by other less detailed test and certification approaches"*.

Although the majority of respondents to the public consultation indicated that the current safety philosophy should be maintained, a small proportion of respondents (14 of the 89 or 16%) would support the modification of the EC-type examination provisions in the existing GAD with the three points from the NLF. One respondent noted that *"some products are produced only once every 1 or 2 years. A paper system evaluation will be fine in these cases"*. In cases where products are produced on a relatively infrequent basis and the type has not changed, assessment of the technical documentation may be sufficient. In this situation a complete EC-type examination of the product (including testing as well as technical documentation assessment) may be considered a waste of time and an unnecessary expense, particularly if the product type has not changed. Hence, the ability to select the third option (from the NLF EC-type examination) to undertake an assessment of the technical documentation only may reduce costs for manufacturers, whilst maintaining an adequate safety level. Another respondent suggested that *"modifying the current safety philosophy of the GAD would give us* [a] *more flexible, faster and cost efficient 'EC-type examination service'"*. It is possible that a full EC-type examination of a product (including assessment of the product itself as well as the accompanying technical documentation) is not necessary in all situations. As previously discussed,

undertaking an assessment of the relevant documentation may be suitable for establishing whether an appliance/fitting meets the requirements of the Directive and, thus, could be considered a more cost effective alternative (compared to a full assessment).

In light of the above evidence, it is clear that altering the safety philosophy of the GAD by allowing manufacturers/notified bodies the choice of type examination procedure is likely to have a negative impact on the functioning of the internal market and competition as certain manufacturers may select notified bodies that certify the product using the least stringent option. This in turn is likely to cost less (because the product itself would not require examination) and would place companies selecting the least stringent option at a competitive advantage compared to other organisations that chose to certify the product using the current, most stringent option. The selection of the least stringent option may also impact the health and safety of consumers as, in certain, instances this may be used inadequately (i.e. in situations in which full inspection of the product and documentation is the most appropriate approach for ensuring product compliance to the essential requirements of the GAD).

However, in certain situations the possibility of selecting one of the three type examination approaches is likely to benefit organisations through reduced operating costs and administrative burdens. This is because, as detailed above, in certain situations full examination (of both the product and associated documentation) is unlikely to be necessary. Therefore, having the choice of a less stringent (lower cost), but adequate alternative will not only allow the relevant checks to be undertaken (to ensure product compliance with the GAD), but will also reduce unnecessary costs for manufacturers.

Introduction of More Demanding Market Surveillance Requirements

In order to ensure products entering the EU market are safe to use, suitably stringent legislation is needed accompanied by effective market surveillance. Market surveillance is an important tool for monitoring gas appliances entering European countries and ensuring that these meet the requirements of the GAD. As outlined in Directive 765/2008 (setting out the requirements for accreditation and market surveillance relating to the marketing of products and repealing Regulation (EEC) No 339/93) the undertaking of market surveillance is the responsibility of Member States. However, analysis of the consultation responses has indicated that a small number suggest changes to the GAD in order to improve the effectiveness of market surveillance.

A stakeholder responding to the European Commission's public consultation notes the importance of market surveillance in ensuring legislation is adhered to and consumers' health and safety is effectively protected. This organisation indicates that most market surveillance activities are undertaken by Member States exclusively and individually at the national level. This approach leads to inconsistencies and results in insufficient resources being made available to police the large number of products on the market. As a result, *"the consumer expectation for safe products is not always met"*. The respondent indicates that, although Regulation 765/2008 (setting out the

requirements for accreditation and market surveillance relating to the marketing of products) became the first European instrument to set certain requirements for market surveillance by Member States, they note *"with the utmost concern"* that a study conducted for the IMCO committee of the European Parliament[131], concluded that most Member States will not commit more resources to market surveillance, either because they think their national systems already meet the requirements of the Regulation or because they do not have the financial resources available.

In relation to this, the stakeholder believes that the revision of the GAD gives an opportunity to introduce more demanding requirements for market surveillance activities in Member States. Therefore, according to the respondent, ambitious requirements should be incorporated into the Directive. In addition, the revised GAD should cover provisions for staff of the national public authorities, who should be required to have the professional skills and equipment needed to verify the compliance of an appliance with the requirements of the Directive even after its installation. The respondent also notes that the revised GAD should cover provisions for national authorities to report the results of their annual inspections to the Commission and the Commission should publish the results on its website.

The overarching regulation (765/2008/EC) already outlines requirements for market surveillance. Introducing more stringent market surveillance requirements in the GAD would result in inconsistencies with other Directives that have adopted the new approach.

Another respondent indicated that *"effective market surveillance in all countries, coordinated at European level, is one of the keystones of the new approach"*. However, they note that there is no Directive-specific Administrative Co-operation Group (AdCo) to deal with issues relating to gas appliances and therefore suggest creating one. These groups enable national market surveillance experts to meet, share information and co-operate on practical matters related to the implementation of specific Directives. Therefore, the creation of such a group for gas appliances is likely to improve information exchange between Member States, particularly in relation to specific products that have caused issues, which may lead to a more targeted (and cost effective) market surveillance approach and an enhancement in consumer health and safety.

Although only two of the 89 respondents to the Commissions public consultation considered there to be a lack of market surveillance in relation to gas appliances, concerns over market surveillance have been raised by consultees in France, Germany, and Italy (as previously indicated). They all noted that the importance of market surveillance and EU wide information exchange should be emphasized, as a way to maintain quality control and enhance consumer protection. Several noted that it is one of the most pressing issues and that the level of surveillance in some cases, e.g. Italy, is currently inadequate. Facilitating a means of sharing knowledge and information between market surveillance experts is considered to improve the EU

131 European Parliament Directorate General for Internal Policies – 'Market Surveillance in the Member States' - http://www.europarl.europa.eu/committees/en/IMCO/publications.html?id=IMCO00001

wide process, thus reducing the number of non-conforming and/or unsafe gas products on the market.

Therefore, inclusion of more demanding market surveillance requirements within the GAD (particularly the development of a system for improving communications between national experts) is considered to have a positive impact on the functioning of the internal market and public health and safety. This is because increased communication between market surveillance experts would facilitate discussion regarding problems experienced with certain gas products (i.e. non-conformities, safety issues etc.) in different Member States. This process would improve the efficiency of the market surveillance process by assisting market surveillance authorities in undertaking a more targeted approach as resources could be focussed on those products that have experienced specific issues. Not only is this likely to result in a more cost effective approach, but may also enhance the functioning of the internal market and improve consumer health and safety as potentially fewer non-conforming/unsafe products are available on the EU market as well as increasing the speed at which such products are identified and removed from Member State markets.

However, including more demanding market surveillance requirements (in addition to those outlined in Regulation 765/2008) within the GAD may have a negative impact on the functioning of the internal market. This is because Regulation 765/2008 sets the general requirements for the market surveillance of all products, thus providing specific requirements for gas appliances will result in a distortion of market surveillance across the EU and potentially result in confusion for the relevant public authorities. An increase in the stringency of market surveillance requirements within the GAD may also negatively impact public authorities and manufacturers (particularly SMEs) through an increase in operating costs, although the extent of this cost increase would depend on the requirements included within the GAD.

Obligations for Importers and Distributors

The existing GAD does not place any particular provisions/requirements on enterprises that are importing or distributing gas appliances into the EU. There is, therefore, effectively a reliance on manufacturers to ensure that products are in compliance with the essential requirements of the Directive because there are no obligations for importers and distributors. However, it is recognised that, to a degree, such problems may be addressed by the General Product Safety Directive (2001/95/EC) which imposes general obligations which also apply to consumer products. The Blue Guide[132], designed to assist Member States and those concerned with the free circulation of CE marked products contains a section that gives some general guidance to importers and distributors which can be seen as best practice recommendations.

[132] EC (2000): Guide to the Implementation of Directives Based on the New Approach and Global Approach, Luxembourg. http://europa.eu.int/comm/enterprise/newapproach/newapproach.htm

An NLF impact assessment (relating to Decision 768/2008/EC)[133] also indicated that market surveillance authorities often experience difficulties in tracing economic operators that supply non-compliant products, particularly when the products originate in third countries. It was therefore determined that these problems could be addressed by aligning the relevant legislation to the provisions of the NLF, which are designed to tackle this issue.

Alignment of the current GAD with the NLF has resulted in the inclusion of additional definitions of 'importer', 'distributor' and 'economic operator'. These are outlined below (as presented in the draft revised version of the GAD):

- 'importer' means any natural or legal person established within the Union who places an appliance or a [fitting] from a third country on the Union market;
- 'distributor' means any natural or legal person in the supply chain, other than the manufacturer or the importer, who makes an appliance or a [fitting] available on the market; and
- 'economic operator' means the manufacturer, the authorised representative, the importer and the distributor.

Article R4 (obligations of importers), Article R5 (obligations or distributors), Article R6 (cases in which obligations of manufacturers apply to importers and distributors) and Article R7 (identification of economic operators) of the NLF relate to importers and distributors and have been aligned with the GAD to form a draft revised version. The main tasks/requirements of the above articles are outlined below:

- Importers shall ensure that the appropriate conformity assessment procedure has been carried out by the manufacturer, the manufacturer has drawn up technical documentation, the product bears the CE mark, the product is accompanied by instructions for use and safety information in accordance with point 1.2 of Annex I before placing the gas appliance or fitting on the market;
- Where an appliance or fitting presents a risk, the importer/distributor shall inform the manufacturer and the market surveillance authorities to that effect;
- Importers shall indicate their name, registered trade name or registered trade mark and the address at which they can be contacted on the appliance or fitting or, where that is not possible, on its packaging or in the instructions accompanying the product;
- When deemed appropriate with regard to the risks presented by an appliance or a fitting, importers shall, to protect the health and safety of consumers, carry out **sample testing** of marketed appliances and fittings, investigate, and, if necessary, keep a register of complaints, of non-conforming appliances and fittings and of appliance and fitting recalls, and shall keep distributors informed of such monitoring;
- Importers/distributors who consider or have reason to believe that an appliance or a fitting which they have placed on the market is not in conformity with the

[133] New Legislative Framework (NLF) Alignment Package, Commission Staff Working Paper - Impact Assessment, accompanying document to the 10 Proposals to Align Product Harmonisation Directives to Decision No 768/2008/EC, SEC (2011) 1376 final, dated 21.11.2011.

Union harmonisation legislation applicable shall immediately take the corrective measures necessary to bring that appliance or fitting into conformity, to withdraw it or recall it, if appropriate. Furthermore, where the appliance or the fitting presents a risk, importers/distributors shall immediately inform the competent national authorities of the Member States in which they made the appliance or fitting available to that effect, giving details, in particular, of the non-compliance and of any corrective measures taken;

- Importers/distributors shall, further to a reasoned request from a competent national authority, provide it with all the information and documentation necessary to demonstrate the conformity of an appliance or a fitting in a language which can be easily understood by that authority. They shall cooperate with that authority, at its request, on any action taken to eliminate the risks posed by appliances and/or fittings which they have made available on the market.
- An importer or distributor shall be considered a manufacturer for the purposes of this Directive and he shall be subject to the obligations of the manufacturer under Article [R2], where he places an appliance or fitting on the market under his name or trademark or modifies an appliance or fitting already placed on the market in such a way that compliance with the applicable requirements may be affected; and
- Economic operators shall, on request, identify any economic operator that has supplied them with an appliance or fitting or whom they have supplied an appliance or fitting to the market surveillance authorities for a period of **10 years** after they have supplied/been supplied with the product.

Alignment of the GAD with the NLF, and hence adoption of articles specifically outlining the obligations of importers and distributors, is likely to clarify the roles of economic operators and provide legal clarity with regards to their rights and responsibilities. In the context of clear and common enforcement criteria, this would also ensure that all economic operators are treated equally by the enforcement authorities across Member States (which in turn would be assisted in correctly applying and enforcing the Directive) and, as a result, improve the functioning of the internal market.

Requiring importers to include their details on the appliance or fitting (or associated packaging) will also improve product traceability, thus allowing market surveillance authorities to trace products that are not conforming to the essential requirements of the GAD or are considered unsafe. This should ensure a faster more efficient response to rectifying the issues associated with identified non-conforming/unsafe products. Also, the provisions of the NLF require importers to undertake sample testing of gas appliances and associated fittings as well as maintaining records of complaints and non-conforming products etc. This testing should ensure that products received from third parties meet the requirements of the GAD before entering the EU market, thus reducing the number of unsafe/non-conforming products and associated incidents. However, this requirement may lead to an increase in costs for operators, which may be particularly significant for SMEs.

The provisions of the NLF also require importers and distributors to take corrective action in the situation where a product is found not to conform to the requirements of the Directive and provide the relevant national competent authorities with details of the non-compliance and the corrective action taken. This should further clarify the roles of importers/distributors when dealing with a non-complying product and may assist with reducing the number of non-conforming/unsafe products entering the EU market.

Similarly, requiring economic operators to retain full details of all businesses to which they have supplied or which have supplied them with gas appliances and/or fittings (for a period of 10 years) would ensure that non-conforming and unsafe products present on the market can be traced quickly and effectively. However, it is important to note that this may lead to an increased administrative burden as some form of storage system will need to be developed and managed, which may lead to an increase in costs. The extent of this impact will depend on each organisations current practice, but there is likely to be a generally greater impact for SMEs because of their reduced ability to absorb cost increases compared to larger operators.

The actions outlined above should assist in reducing unfair competition from less scrupulous economic operators placing non-conforming/unsafe products on the EU market and, as a result, help ensure a level playing field for operators. However, it is important to note that the requirements to undertake additional testing, to contact relevant authorities in the event of product non-conformity and to keep records for a period of 10 years will potentially lead to an increase in costs for importers and distributors. Larger operators are likely to be better positioned to deal with the potential increase in costs. Smaller importers/distributors, particularly from third countries, may have significantly increased costs as they do not have the in-house facilities or personnel to undertake product testing, document management and liaison with type-approval authorities/national authorities. This could result in some small non-EU importers and distributors exiting the EU market. However, the potential cost increase is heavily dependent on an organisation's current practice.

Summary

Based on the discussion presented above, Table 7.6 presents a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis of *Option 2: Alignment with the NLF*.

Overall, it would appear that Option 2 could deliver a range of benefits although there remains considerable uncertainty. However, the preliminary analysis does indicate that it is unlikely that a move from the current notified body system to accredited in-house bodies would be beneficial.

Option 2 will be taken forward for further assessment because alignment of the GAD with the NLF is a necessary requirement.

Table 7.6: SWOT Analysis of Policy Option 2 – Alignment of GAD with the NLF	
Strengths	**Weaknesses**
• Specifying a timeframe for which documentation should be kept would ensure a consistent approach is undertaken by manufacturers preventing misinterpretation. • More detailed provisions for dealing with appliances or other items presenting a risk at national level should clarify the situation. • Accredited in-house bodies are used in other Directives (e.g. the PED) and, according to some stakeholders, these work effectively. • Allowing manufacturers the choice of method for undertaking EC-type examination (examination of the complete appliance, critical parts or technical documentation only) could be more cost effective – provided Notified Bodies were satisfied. • More demanding market surveillance requirements for Member States in the GAD and the addition of provisions requiring staff to have the professional skills and equipment needed to verify compliance of products with the Directive may enhance consumer. • Clarification of responsibilities for importers and distributors.	• Requirement to keep technical documentation and declaration of conformity for a period of 10 years may increase administrative costs for manufacturers. • Allowing manufacturers the choice between an accredited in-house body and a notified body may impact the functioning of the internal market as some products will enter the market with a notified body ID number whereas others will not. This would create an inconsistency on the EU market, resulting in consumer confusion, more difficult market surveillance (as product traceability is reduced and a potential increase in health and safety risk for consumers/installers. • Offering manufacturers the choice of method for undertaking EC-type examination may adversely impact consumer safety. • More demanding market surveillance requirements within the scope of the GAD would cause inconsistencies with other Directives (e.g. Directive 765/2008/EC).
• **Opportunities**	• **Threats**
• Possible increase in time for which documentation is held (for certain organisations) may assist in the facilitation of market surveillance (easier to trace/locate documents). • Potentially a reduction in administrative costs for manufacturers that currently store documentation for longer than 10 years. • More detailed provisions for dealing with appliances or other items presenting a risk at national level may reduce administrative costs in the longer term. • If GAD is extended to cover all gas using appliances then it may be the case that certain product types are not considered to require third party accreditation (by notified body). Use of accredited in-house bodies may reduce conformity assessment costs. • Offering manufacturers the choice of method for undertaking EC-type examination may lead to reduced costs for manufacturers of products which are infrequently produced and whereby the 'type' is not significantly changed. • Introduction of a GAD Administrative Co-operation group (AdCo) would potentially be useful for enabling national market surveillance experts to share information and co-operate on practical matters related to the implementation of GAD. This may lead to a more targeted (and cost effective) market surveillance approach and potentially a reduction in the number of non-conforming/unsafe products entering the market in the future.	• Requirement to keep technical documentation and declaration of conformity for a period of 10 years may increase administrative costs for manufacturers and potentially detrimentally impact SMEs more significantly than larger organisations (because of limited resources), thus impacting market competition. • Potential increase in administrative burden and hence costs may impact European manufacturers harming competition with product manufacturers outside the EU. • Introduction of accredited in-house bodies could be considered a 'step-down' in conformity assessment quality compared to certification by 3rd party notified bodies by potentially reducing independence of the assessment • Larger organisations with greater resources are better positioned to establish accredited in-house bodies compared to SMEs, potentially impacting market competitiveness as there may be a distortion in conformity assessment costs (i.e. SMEs are forced to outsource type-approval and conformity assessment whereas larger organisations can undertake this in-house at a lower cost). • Offering manufacturers the choice of method for undertaking EC-type examination may result in manufacturers selecting the least stringent (and potentially least costly) option, which may increase the number of non-conforming or unsafe products entering the EU market as this option may not adequately assess the product's conformity to type.

7.4 Option 3: Alignment with the NLF and Technical Updating

7.4.1 Aims of the Option

This Option would build on Option 2 but would also include the technical updating of the GAD.

Technical updating of the current GAD would be intended to address any problems associated clarification of certain provisions so as to prevent confusion and ensure consistent understanding of the requirements amongst national authorities, economic operators, conformity assessment bodies etc.

7.4.2 Defining the Option

In particular, it is assumed that technical updating would address the following issues (if they were considered to be 'problems'):

- The need for Member States to provide additional information relating to gas type and supply pressures;

- Technical updating requirements relating to the rational use of energy, and the need to ensure that the potential for misinterpretation of GAD requirements is minimised (e.g. through up-dating of Guidance Sheets and clarify language used); possibly up-dating to clarify appropriateness of multiple harmonisation requirements and to address any safety concerns with regard to CE marking of fittings under the CPD/CPR;

- Clarification concerning the exclusion (or inclusion) of gas appliances specifically designed for use in industrial processes carried out on industrial premises from the scope of the GAD. There is currently the possibility of misinterpretation because the Directive does not provide any specific definitions of industrial appliances or industrial premises or any justification for this exclusion;

- Clarification relating to the exclusion of gas appliances from the scope of the GAD with a normal water temperature exceeding 105^{o}C. This limit excludes certain gas appliances from requiring a CE marking. The temperature restriction is considered to be included in the GAD as a result of certain pressure risks; however, these are currently covered by the scope of the Pressure Equipment Directive. Therefore, clarification of this point may prevent any confusion for manufacturers considering the provisions of the two Directives; and

- CE marking for fittings (as currently defined by GAD). About 75% of respondents (from both industry and authorities) to consultation for this study were in favour of CE marking for fittings. (*Note that the extension of 'fittings' to include other 'components' such as flexible hoses would form part of Option 5 as currently specified).*

7.4.3 Technically Updating the GAD – Preliminary Considerations

As outlined above, Option 3 involves aligning the GAD with the NLF (considered under Option 2) and technically updating the GAD, with particular reference to the streamlining of provisions to ensure clarity and prevent confusion or misinterpretation. The implications of altering the GAD in order to address such issues are discussed below based on information received from stakeholder consultation as well as associated research and analysis that has been undertaken.

Availability of Additional Gas Supply Information

In the framework of the current GAD the technical harmonisation covers gas appliances and fittings but does not include the types of gas and corresponding supply pressures. This is because the energy supply and distribution conditions in the Member States are not subject to harmonisation. To ensure that safety relevant information on gas supply conditions is available for stakeholders (e.g. manufacturers, notified bodies, Member States authorities etc.) GAD requires Member States to communicate the types of gas and corresponding supply pressures used on their territory and any changes in these to other Member States and the European Commission (in accordance with paragraph 2 of Article 2). Subsequently, this information is published in the Official Journal of the European Union.

Extensive discussions by the GAD Revision Working Group indicate that there appears to be a common agreement of the need to better determine the parameters which should be communicated by Member States. This is to ensure that adequate data is made available to guarantee compatibility of appliances with the gas supply conditions at the place of installation. Therefore, in relation to this, consideration of the increasing use of gaseous fuels from renewable sources (biogas), new innovative technologies (e.g. fuel cells) and the potential use of types of gas currently not communicated by Member States (e.g. hydrogen).

The potential area of concern to a number of manufacturers and competent authorities, however, relates to the differences in the types of gas in use and the corresponding supply pressures that exist in the Member States; both of these aspects may have an impact on the design of a gas appliance and/or its fittings. It is argued by some stakeholders that such differences may result in markets not being fully harmonised and thus restricting the free circulation of gas appliances. The key issue for the Commission, however, is whether the non-harmonisation of gas supply conditions affects the full harmonisation of the health and safety requirements of products covered by the GAD. On the face of it, if the gas supply conditions are specified then it can be determined whether the installation requirements and the operating conditions of a particular appliance are appropriate. In other words, the issues are more practical rather than legal issues which need to be addressed as part of the revision of the GAD.

In light of the above, stakeholders were asked (as part of the European Commission's Public Consultation) whether additional information on gas supply conditions in the Member States should be made available. Table 7.7 indicates that approximately

three quarters of respondents would like to see additional information relating to gas supply conditions in Member States be made available. Less than 10% of respondents disagreed with this position. An analysis of the responses received from specific stakeholder groups in relation to this aspect indicates that the majority of Member State associations, Industry organisations and Notified Bodies would be in favour of having additional gas supply information made available.

Table 7.7: Should additional information on the gas supply conditions in the Member States be made available?		
Response	**Number of Responses**	**% of Responses**
Yes	68	76
No	8	9
No opinion	13	15
Total	**89**	**100**

The stakeholders indicating that additional information relating to gas supply conditions in the Member States should be made available also provided additional comments. A number of respondents suggested that, aside from the type of gas, the following information should also be provided: *"Gross calorific value in MJ/m^3 minimum/maximum; Wobbe number in MJ/m^3 minimum/maximum; Supply pressure at inlet of appliances in mbar (nominal / minimum / maximum) or Supply pressure at point of delivery in mbar (nominal / minimum / maximum); Admissible pressure loss in the end-user gas installation in mbar (nominal / minimum / maximum conditions) for Wobbe index and Gross calorific value shall be the following: combustion reference temperature (15^{o}C); Volume measurement reference temperature (15^{o}C)"*. Numerous stakeholders indicated that the above additional information relating to gas supply conditions should be made available with continuous recording a mandatory requirement. This is to ensure the high safety level is maintained as manufacturers have access to all the relevant information regarding regional variation in gas supply conditions and therefore design products to adequately (safely) operate within these regions. This should also ensure that the risks associated with situations, such as that which occurred in Denmark in December 2010, are minimised[134].

The GASQUAL Study[135] indicates that exceeding the upper limit of gas quality specifications (for particular appliances should the gas supply conditions change) can cause safety issues and is more critical than in situations where the gas quality falls below an appliances lower limit because of the risk of fast rising carbon monoxide emissions (as a result of incomplete combustion). Also of note is that older pre-GAD appliances are less sensitive to changes in gas quality compared to newer products because they are mostly equipped with atmospheric burners. The GASQUAL study

134 In December 2010, G25 gas was imported from Germany and distributed instead of the traditionally supplied high calorific natural gas from the Danish North Sea sector. According to some respondents to the Public Consultation, this resulted in a number of gas appliance issues, due to the differences in conditions between the two gas types. However, this reversal of the normal flow of gas was necessary to safeguard the security of the Danish gas supply in the extremely cold conditions of December 2010. (http://www.gasunie.de/en/main-menu/news/reversed-german-gas-flows-for-denmark)

135 The GASQUAL Gas Quality Study - http://www.gasqual.eu/.

also states that *"the concern remains that a significant number of European appliances could be installed or serviced using line gas at one extreme of the gas quality limits (say minimum Wobbe Number) and then may be operated at a later date on gas at the opposite extreme (say maximum Wobbe Number)"*. It is therefore important that sufficient information is provided to Member State authorities and manufacturers so as to ensure that appliances operate safely within their gas quality range.

The importance of providing additional information relating to gas supply conditions is further highlighted as, in some stakeholders' experience; many Member State officials do not precisely know the types of gas distributed within their country. However, respondents also note that this information should not restrict the types/categories of gas that are used by countries and should always allow Member States to choose alternative gas types if necessary (e.g. biogas etc.).

Other respondents noted that liquefied natural gas (LNG) is already being imported into the EU in certain countries and this is likely to increase in the future. The quality of LNG differs greatly depending upon where it is sourced, extracted and processed. According to stakeholders, it is therefore important that manufacturers of LNG using appliances have access to supply conditions (e.g. Wobbe index, calorific value, supply pressure are of importance, but also the chemical composition of the gas is of importance, for example methane, ethane, propane, butane, hydrogen, nitrogen, CO, CO_2 are relevant components) in order to ensure appliances are correctly designed to use LNG in different regions of the EU. In order to maintain safety levels it is also suggested that regular surveillance of LNG gas quality should be undertaken.

Stakeholders have also indicated that the information currently published in the Official Journal of the European Commission is sometimes very difficult to compare because they are provided by the Member States in a non-harmonised way. Therefore, specifying the additional gas supply conditions as well as the format in which they are to be provided would simplify the procedure and potentially prevent confusion (thus enhancing the functioning of the internal market) as well as reduce the administrative burden when information is supplied to Member States and the European Commission.

Furthermore, respondents to the Public Consultation also noted that the differences in gas qualities across EU Member States could be considered a barrier to trade as manufacturers may design products for use with specific gas types, therefore, preventing the sale of these products to regions using gas of different quality. Although, this is potentially a significant issue, this does not relate to the requirements of the GAD specifically and has not been considered in greater detail.

A small number of stakeholders do not believe it necessary to provide additional information relating to gas supply conditions in Member States. These respondents indicate that they have not experienced any problems as a result of the current information provided. It is also suggested that the information on gas supply conditions defined in EN 437 is sufficient. Another respondent noted that the distribution of gas (natural gas and LPG) is the responsibility of private (international)

organisations. The stakeholder indicates that *"not all Member States have an agreement with the gas distributors on the limits for the gases distributed"*. Therefore, Member States can only provide global information on the gases distributed and this *"will not be for every Member State as reliable as it should be"*. According to the respondent, the best way of obtaining reliable information is through the CEN-network, whereby information can be published in EN 437. In this situation it is up to the manufacturer to specify clearly the types of gases that their appliance can use and it is the responsibility of the installer to ensure that the appliance is connected to a distributed gas that is suitable for the appliance(s)[136].

The majority of respondents would welcome the requirement to provide additional gas supply condition information in Member States to ensure manufacturers have adequate information to design appliances that operate safely within different regions of the EU. The introduction of a harmonised reporting template may also positively impact organisations as a structured approach would facilitate an easier understanding of the information provided, thus enhancing the functioning of the internal market and potentially reducing the administrative burden.

Providing manufacturers of gas appliances with sufficient information regarding the gas supply conditions in different regions of Member States will ensure that products are designed and developed to ensure that they operate efficiently and safely throughout the EU. Also, specifying the additional gas supply conditions along with the format in which these should be provided to the Commission (by relevant National Authorities) would simplify the notification procedure, both for Member States and the European Commission, thus preventing confusion and potentially reducing the administrative burden.

To safely and effectively market appliances to those countries that utilise different gases, stakeholders consulted for this study have indicated that they need additional information on gas supplies. This additional information should continually be collected and disseminated, detailing any regional differences in supply, the test pressure as determined by the Wobbe Index and further details as to the composition of the gas. Discussions between the WG GAD Rev with Member States and other stakeholders has lead to the agreement that a more complete list of parameters will be identified in order to enable communications regarding gas supply information.

Although the points raised above may be useful considerations and potentially benefit manufacturers and national authorities, it should be noted that no concrete evidence of safety issues or barriers to trade have been identified that would be removed as a result of requiring additional gas supply information.

[136] It is worth noting that the GASQUAL study highlights that new adjustment guidelines would be needed for small forced draught burners and new adjustment procedures would be needed for gas boilers if wider gas quality ranges were to occur.

Energy Efficiency

In the current GAD essential requirement 3.5 states that *"appliances must be so constructed as to ensure rational use of energy, reflecting the state of the art and taking into account safety aspects"*. In the revised version of GAD produced by the Gas Appliance Directive Revision Working Group this has been altered and now reads as follows: *"appliances must be so designed and constructed as to ensure efficient use of energy, reflecting the state of the art and taking into account safety aspects. In the area in which they apply, compliance with the energy efficiency requirements covered more specifically by other Community Directives shall be equivalent to fulfilment of this requirement"*. The question has arisen regarding whether there is a need for this essential requirement or, alternatively, whether it is necessary to deal with energy efficiency within the framework of the GAD in a more concrete way.

As part of the European Commission's public consultation stakeholders were asked whether it is necessary to deal with energy efficiency in a more concrete way in the GAD. As can be seen from Table 7.8, the majority of respondents (67 of 89 or 75%) do not consider it necessary to deal with energy efficiency within the framework of the GAD in a more concrete way. Only 11% of respondents disagreed with this position. The same trend is also identified when analysing the responses received from specific stakeholder groups. The majority of Member State authorities, Industry organisations, Notified Bodies responding to the public consultation suggest that there is not a need to consider energy efficiency within the scope of the GAD in a more concrete way.

Table 7.8: Is it necessary to deal with energy efficiency in a more concrete way in the GAD?

Response	Number of Responses	% of Responses
Yes	10	11
No	67	75
No opinion	12	13
Total	**89**	**100**

The respondents that answered 'no' to the above question indicated that energy efficiency of products should not be considered in the GAD as other Directives (such as the Ecodesign Directive and Eco-labelling Directive) already specifically consider energy efficiency of products. Therefore, inclusion of energy efficiency requirements within the GAD could be superfluous. One respondent noted that *"double regulation must be avoided to prevent unnecessary administrative burden"*. Other respondents suggested that *"energy efficiency is a complex issue, depending on the kind of appliance, building construction etc."*, therefore GAD should only consider safety issues. To include energy efficiency requirements within the GAD may lead to complications with Directives specifically designed to regulate such issues. This may also increase the administrative burden for manufacturers if requirements are to be met under multiple Directives.

A small number of respondents that do consider it necessary to deal with energy efficiency in a more concrete way in the GAD also provided comments. A point made by a number of stakeholders is that the GAD should be harmonised with the Ecodesign Directive (which has been replaced by the Energy-Related Products Directive) to ensure that the requirements under each do not conflict. Another respondent proposed referencing the Ecodesign Directive within the GAD. Perhaps inclusion of a reference to the Ecodesign Directive will clarify the situation and ensure that manufacturers of gas appliances abide by the energy efficiency requirements within this Directive.

Considering the information obtained from the consultation process it is clear that including more detailed energy efficiency provisions within the GAD is unlikely to result in any significant benefits, as other more specific Directives (such as the Energy-Related Products Directive - 2009/125/EC, which replaces the Ecodesign Directive - 2005/32/EC) relating to the efficient use of energy already apply to gas appliances. However, the addition of a reference to the Energy-Related Products Directive within the GAD is considered to have some merit as this would provide further clarification of the energy efficiency requirements that manufacturers need to be complied with (in order to support the Europe 2020[137] target of a 20% increase in energy efficiency). Therefore, no evidence has been obtained to suggest that energy efficiency requirements should be included within the GAD in a more concrete way as suitable alternative legislation already applies to gas appliances. However, the maintenance of essential requirement 3.5 within the GAD is considered useful to ensure that manufacturers account for the energy efficiency requirements outlined in the Energy-Related Products Directive.

Clarification of the Definition of 'Appliances'

The existing GAD applies to *"appliances burning gaseous fuels used for cooking, heating, hot water production, refrigeration, lighting or washing and having, where applicable, a normal water temperature not exceeding 105°C. It applies also to forced draught burners and heating bodies to be equipped with such burners"*. However, it is evident from the responses received from the public consultation that a number of stakeholders are unclear as to which appliances fall within the scope of the GAD. It should be noted that such concerns included issues relating to extending the scope of GAD to include different product groups. Although such issues are outlined below, extending the scope of GAD (as Option 5) is considered further in Section 7.6.

As indicated in Table 7.9, when asked whether the above definition of appliances is clear enabling the determination of appliances falling within the scope of the GAD, the majority of respondents (65 of 89 or 73%) stated 'no'. A similar trend is also observed when assessing the responses received from separate stakeholder groups. The majority of Member State, Industry and Notified Body respondents agreed that the current definition of 'appliances' is unclear.

[137] Europe 2020 - http://ec.europa.eu/europe2020/index_en.htm.

Table 7.9: Is the definition of 'appliances' clear enabling the determination of appliances falling within the scope of the GAD?		
Response	**Number of Responses**	**% of Responses**
Yes	17	19
No	65	73
No opinion	7	8
Total	**89**	**100**

Evidence obtained from the European Commission's Public Consultation, the stakeholder consultation undertaken by RPA and other research has highlighted that there are various 'conventional' gas burning products currently not included within the scope of the GAD including blow torches, steam boilers, weed burners, hand-held burners/gas cartridge appliances, etc. If specific issues regarding the safety or intra-EU trade of these products have been identified, then adjusting the definition of appliances to allow these to be included with the scope of the GAD would improve the current situation (in terms of product safety, functioning of the internal market and competitiveness depending on the problem identified). However, as discussed previously, very limited evidence has been obtained to suggest that barriers to trade or safety issues exist with the regard to these products.

It is suggested by some respondents that the normal water temperature limit of 105^{o}C should be removed from the definition of 'appliances'. One respondent indicated that this limit is no longer relevant and creates a confusing situation considering that the border between the GAD and the Pressure Equipment Directive is clear enough. However, other respondents indicated that the 105^{o}C limit should be maintained. Some degree of consensus would need to be sought regarding the relevance of this part of the definition. This potential issue is discussed in greater detail below.

Another respondent indicated that the current definition of appliances in the GAD is unclear. As a result, discussions regarding the appliances that should fall within the scope of the GAD and those that should not commenced from the inception of the GAD. There was particular uncertainty surrounding the appliance burning gaseous fuels for heating purposes and as a result a guidance document was needed to help clarify the situation. This guidance document stated that only appliances used for heating for comfort (room heating) was meant, which, according to the respondent, resulted in an illogical division amongst some leisure gas appliances (as illustrated by EN 521:2006 - *Specifications for dedicated liquefied petroleum gas appliances - Portable vapour pressure liquefied petroleum gas appliances).* The scope of this standard includes blow lamps (for soldering), whereas this gas burning appliance is currently excluded from the GAD. However, references to EN 521:2006 are published under the GAD. Although inclusion of a reference to EN 521:2006 appears to be a suitable situation, according to this respondent, the scope of the GAD should be made clearer and broadened.

A point made by one respondent was that some products may or may not be covered by the scope of the GAD according to the appliance settings or use (such as fuel cells

depending on the ratio of heat dispended, boilers using different water temperature settings and regulators/valves inside or outside the appliance). Although, these are specified within GAD guidance document A1 it may be necessary to provide further details in order to clarify the situation, thus preventing any misinterpretation.

One response received indicated that the existing definition is *"not too bad as far as what is to be understood as being part of it"*. However, it is suggested that this could be improved as the definition *"does not define what 'cooking' is"*. If the definition was made perfectly clear then there would not be a need for any guidance sheet on this matter. Clarification of this part of the definition will assist relevant organisations in deciding whether an appliance falls within the scope of the GAD or not. This should prevent any confusion and also reduce the administrative burden as the guidance document would not need to be referred to.

A number of respondents also expressed the need for the inclusion of a precise definition of where a gas appliance starts and ends. In relation to this and in the instance of chimneys it was noted that *"there is no sound, understandable and simple description of the dividing line"* of where an appliance ends and *"a chimney should not be automatically treated as a sub-component of a gas appliance"*. It was also noted that *"the substantiation that the use of independent chimneys can result in main installation mistakes is not valid"*. The contrary to this is that it is perhaps incorrect to assume installation mistakes do not occur with chimneys constructed on site. A description of where an appliance starts and ends could help clarify the situation.

As indicated above, it is clear that there is a degree of confusion regarding the appliances that fall within the scope of the GAD. The addition of a clearer definition or perhaps a more detailed explanation of where the gas appliance starts and ends may benefit manufacturers through clarifying those products within and outside the scope of the GAD, thus enhancing the functioning of the internal market. Therefore, according to stakeholders modification/further clarification of the definition of 'appliances' is a useful exercise, however, it should be noted that no concrete safety issues or barriers to trade have been identified to warrant this process.

Modification of Essential Requirements

Throughout the consultation process a number of possible modifications to essential requirements (ERs) have been suggested by stakeholders. Brief commentaries on these suggested modifications are presented in Annex 2.

The overall conclusion is that the suggested modifications are generally related to semantic rather than substantive points. In general, the proposed modifications are likely to involve minor costs with minimal impacts and, on this basis, have not been considered further.

One issue worthy of further comment relates to submissions by CoGDEM[138] to both the Public Consultation and directly to the Commission. CoGDEM believes that an

[138] Council for Gas Detection and Environmental Monitoring (http://www.cogdem.org.uk/)

addition to ER 1.2.1 of the GAD has the potential to increase the 'tools' available to Member States to assist in their efforts to discharge their responsibilities summarised in recital (2) of the Directive[139] with particular regard to reducing the numbers of fatal and non-fatal CO poisonings. To this end, CoGDEM suggests adding a bullet point (highlighted in bold) to ER 1.2.1 as follows:

The technical instructions intended for the installer must contain all the instructions for installation, adjustment and servicing required to ensure that those operations are correctly performed and that the appliance may be used safely. In particular, the instructions must specify:

- *the type of gas used;*
- *the gas supply pressure used;*
- *the flow of fresh air required:*
  - *for the combustion air supply;*
  - *to avoid the formation of dangerous unburned gas mixtures for appliances not fitted with a special device which avoids a dangerous accumulation of unburned gas in such spaces or rooms.*
- *the conditions for the dispersal of combustion products;*
- ***the method of assessing efficient and safe combustion at the time of commissioning and after servicing or maintenance;***
- *for forced draught burners and heating bodies intended to be equipped with such burners, their characteristics, the requirements for assembly, to assist compliance with the essential requirement applicable to finished appliances and, where appropriate, the list of combinations recommended by the manufacturer.*

CoGDEM envisage that such methods would relate to standards, where available, such as the recently updated EN 50379 relating to portable measuring instruments[140] and these could be specified in the GAD Guidance.

The general requirements for technical instructions reflect the NLF obligations of manufacturers under article R2 (7) of Decision 768/2006/EC:

> *Manufacturers shall ensure that the product is accompanied by instructions and safety information in a language which can be easily understood by consumers and other end-users, as determined by the Member State concerned.*

With these points in mind, it is proposed that improvements to ER 1.2.1 would result in a more complete alignment with the NLF provisions. As such, the potential costs and benefits associated with improvements to ER 1.2.1 will be further considered alongside other aspects of the NLF Alignment (Option 2).

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139 *Member States are responsible for ensuring the health and safety on their territory of their people and, where appropriate, of domestic animals and goods in relation to the hazards arising out of the use of appliances burning gaseous fuels*

140 CENELEC (2012); **EN 50379-1:2012 Specification for portable electrical apparatus designed to measure combustion flue gas parameters of heating appliances** (in 3 Parts)

Exclusion of Industrial Appliances

In Article 1 of the existing GAD *"appliances specifically designed for use in industrial processes carried out on industrial premises shall be excluded from its scope"*. Stakeholders were asked as part of the public consultation whether they thought it was necessary to maintain this exclusion. As indicated in Table 7.10, the majority of respondents consider it important to keep this exclusion within the GAD. Assessment of stakeholder groups' responses to the public consultation indicates that the majority of Member State authorities, Industry organisations and Notified Bodies agree with this general opinion to maintain the exclusion of industrial appliances within the scope of the GAD.

Table 7.10: In your opinion should this exclusion be maintained?		
Response	**Number of Responses**	**% of Responses**
Yes	64	72
No	7	8
No opinion	18	20
Total	**89**	**100**

A number of respondents suggested that the essential requirements of the current GAD are not suitable for gas appliances specifically designed and constructed for use in industrial processes on industrial premises because the associated risks are not limited to combustion but to many other risks. Furthermore, these products are designed and constructed for their specific industrial purpose and are therefore covered by other Directives (for example, the Pressure Equipment Directive, ATEX Directive, the Machinery Directive etc.). Therefore removal of this exclusion would result in overlaps between requirements of these Directives and the GAD in relation to gas appliances used in industrial applications, which would be potentially detrimental to the functioning of the internal market.

Other stakeholders note that the GAD addresses in general the appliances and accessories serially manufactured and commercialised for domestic and non-industrial use. These appliances are therefore used by people with limited technical knowledge. Appliances that are specifically conceived for use in industrial processes developed inside industrial units are intended for use by qualified personnel and therefore subjected to the safety requirements of the respective industrial process. This suggests that inclusion of industrial appliances within the scope of the GAD is not considered to have a significant impact on consumer safety because the specific nature of these products means that the safety requirements are specific to the process and the person using the device is likely to have had some form of training, hence the general safety requirements of the GAD may not account for this.

Another point made was that manufacturers of industrial process equipment are often providing *"a custom plant equipment service to the manufacturing sector"*. Therefore, inclusion of this equipment within the GAD *"will limit customers choices to equipment which may not truly meet their needs and will put unnecessary time and expense onto the equipment if a piece of custom plant was required"*. For example,

the appliance 'type' needs to be approved before a product can be sold on the EU market, but inclusion of industrial gas appliances within the GAD would restrict the number of bespoke products that could be produced as seeking type-approval for each individual unit would not be feasible. Another stakeholder noted that inclusion of industrial gas appliances within the scope of the GAD *"would increase the cost of such appliances"* because each unit type will need to be certified. One respondent suggested that inclusion of gas appliances designed for industrial use within the scope of the GAD may be possible if a more flexible system was introduced. For example, in the case whereby a manufacturer was allowed to change certain factors of the appliance provided that the appliance kept within a set of design parameters. Hence, *"this may provide some level of assurance, but not be so restrictive that it damages industry"*.

The responses received from the public consultation highlighted the need for clarification of certain aspects of the exclusion. One noted that *"industrial processes are often highly specialised and need one to one certification/safety evaluation in situ. In other situations the installation and user are identical as under the scope of the GAD"*. In this situation, this stakeholder indicates that they would prefer the acceptance of the CE mark for industrial gas equipment. Perhaps a specific definition of an industrial appliance (either within the GAD or a guidance document) would clarify the situation and assist with the functioning of the internal market.

Other respondents would like the exclusion to be removed, thus including gas appliances used in industrial processes carried out on industrial premises within the GAD. The reason for this is to ensure that industrial appliances meet the essential requirements of the GAD, thus increasing safety within industry. However, this contradicts the opinions of other stakeholders, which suggest that the essential requirements of the GAD are unsuitable for industrial products because the associated risks are not limited to combustion. In general maintenance of the exclusion is considered the most appropriate option, which allows manufacturers the freedom to develop industrial innovations, prevents overlap with other Directives (double regulation) and ensures the effective functioning of the internal market. However, providing further clarification of the definition of 'industrial' products within Guidance Sheet A5 may be a useful exercise in ensuring clarification and preventing misinterpretation by manufacturers.

As already discussed, industrial equipment may be covered by the Machinery Directive and, in a recent position paper[141], Orgalime (the European Engineering Industries Association) notes that:

> *Finally the planned revision of the Gas Appliances Directive should be mentioned. A widening of the scope of this Directive in order to include machinery that is covered by the Machinery Directive should be rejected as it would cause unnecessary double regulation. Both the safety requirements of the*

[141] Orgalime (2012): **Follow up of the Study on the Competitiveness of the Mechanical Engineering Industry**, Position Paper dated June 2012 (http://www.orgalime.org/positions/mechanical.asp).

Machinery Directive and the existing harmonised standards already cover the risks arising from gaseous fuels.

In light of the above, it is clear that removing the industrial appliance exclusion from the GAD (thus allowing industrial appliances to be included within the Directive's scope) is likely to negatively impact the functioning of the internal market because (as indicated above) other Directives already apply to gas appliances used in industrial environments. Therefore, inclusion of requirements within the GAD may result in overlaps between other Directives, effectively creating double regulation. Industrial gas equipment is often purposely built or adapted for a specific client/use. Inclusion of industrial appliances in the GAD would restrict bespoke products because EC-type approval would need to be undertaken for each new unit. Not only could this potentially impact innovation and research, but also increase the cost of bespoke products for both manufacturers to produce and customers to purchase because individual certification will be required. Therefore, because there are no perceived benefits of removing the industrial exclusion from the GAD or any evidence regarding safety issues or barriers to trade caused by the exclusion, this option will not be considered further.

Exclusion of Appliances with a Normal Water Temperature Exceeding 105^{o}C – Clarification

In the current GAD, appliances are defined as *"burning gaseous fuels used for cooking, heating, hot water production, refrigeration, lighting or washing and having, where applicable, a normal water temperature not exceeding 105^{o}C..."*. Therefore gas appliances with a normal water temperature that exceeds 105^{o}C are excluded from the scope of the GAD. Stakeholders were asked whether this exclusion should be maintained in the revised version of the GAD. Table 7.11 indicates that the majority of respondents (40 of 89 or 45%) suggest that this exclusion can be removed from the text of the GAD, thus including appliances with a normal water temperature above and below 105^{o}C within the Directive's scope. Analysis of responses from specific stakeholder groups (Member States, Industry and Notified Bodies) indicates that the majority of respondents in each case are not in favour of maintaining this exclusion.

Table 7.11: In your opinion should this exclusion of appliances with a normal water temperature exceeding 105^{o}C be maintained?

Response	Number of Responses	% of Responses
Yes	24	27
No	40	45
No opinion	25	28
Total	**89**	**100**

Those respondents suggesting that the exclusion should be removed also provided a number of additional comments. It was noted that *"gas related components of installations* [with water temperatures] *that go above 105^{o}C are already within the scope of the GAD. This is why this limit can be deleted"*. Another indicated that the exclusion should be deleted *"so that Italian coffee makers that operate above 105^{o}C*

are within the scope of the GAD". One respondent also suggested that the exclusion has caused problems and a guidance sheet has been required in order to clarify certain issues, such as whether coffee machines are within the Directive's scope. GAD guidance document A1 (relating to 'Appliances and its fittings covered by the Directive') specifically states that *"The Directive does not apply to appliances when normal water temperature exceeds 105°C. However, where water temperature exceeds 105°C for a short period, e.g. café boilers and coffee machines, the appliances remain within the scope"*. Other respondents note that the 105°C limit was introduced in order to prevent overlap between the Pressure Equipment Directive and the GAD.

The stakeholders that would like to see the exclusion maintained noted that gas appliances with a normal water temperature exceeding 110°C are covered by the Pressure Equipment Directive. It is important to stress that such arguments are not intended to suggest that there are areas 'between' Directives for which there are no harmonised requirements. By way of example, the standard EN 14394:2005 (as amended) specifies requirements for gas boilers with an operating temperature between 100°C and 110°C and a nominal heat output not exceeding 10 MW, which are not covered by the Pressure Equipment Directive.

Other respondents noted that domestic appliances do not generally have a normal water temperature above 105°C and the expansion of this temperature threshold will include appliances used in industrial processes. However, it is important to note that industrial appliances are excluded from the scope of the GAD, so removal of the 105°C limit would not automatically result in the inclusion of industrial appliances within the GAD. Another respondent noted that extension of this threshold would encompass steam plant, which *"is a complex field where equipment could use multiple fuels, multiple burners that work individually or in unison"*. They also suggest placing a cap on thermal input should the normal water temperature limit be removed from the GAD.

Discussions with relevant stakeholders indicates that the inclusion of the 105°C limit within the GAD was undertaken in order to distinguish appliances from those covered by national legislation covering pressure vessels (now harmonised under the Pressure Equipment Directive). However, this provision is not now considered to serve any useful purpose, hence could be removed from the GAD with minimal material impact. As indicated above, the removal of the exclusion is also supported by the majority of stakeholders that were questioned as part of this assessment. It should be noted that no specific barriers to trade or safety issues have been identified to support the removal of this limit and is therefore not considered further.

CE Marking of Fittings

Under Article 8 of the current GAD appliances are to be affixed with a CE mark in order to demonstrate its conformity to the Directive. However, although fittings must abide by the same means of certification of conformity as appliances (referred to in paragraph 1 of Article 8) they (fittings) should not be affixed with a CE mark. Instead a certificate is issued declaring the conformity of the fittings with the provisions of the GAD which apply to them. This document also provides the characteristics of the fittings and how they must be incorporated into an appliance or assembled to assist compliance with the essential requirements applicable to the finished appliances set out in Annex 1 of the Directive.

A short questionnaire was sent to stakeholders, with one of the questions asking whether the CE marking of fittings is a worthwhile exercise. Table 7.12 provides a summary of the responses received to this question.

Table 7.12: Responses to the Question: Another proposal is to require CE marking for 'fittings'? Do you agree with this proposal?

Response	Number of Responses (% of Responses)			
	National Authorities	**Industry**	**Other**	**Total**
Yes	13 (72)	7 (78)	3 (100)	23 (77)
No	4 (22)	2 (22)	0 (0)	6 (20)
Don't know	1 (6)	0 (0)	0 (0)	1 (3)
Total	**18 (100)**	**9 (100)**	**3 (100)**	**30 (100)**

Table 7.12 indicates that the majority of respondents (23 of the 30 or 77%) agree with the proposal of requiring a CE mark for fittings (as outlined in the informal working document, which combines the existing GAD with the NLF). Only 6 respondents (equivalent to 20%) disagreed with this proposal.

Respondents answering this question were also invited to provide further comments/reasoning for the answer provided. One respondent that answered 'yes' to this question (CE marking for fittings should be required) noted that *"some fittings are also covered by other Directives (e.g. Low Voltage Directive). Under these other Directives the CE marking is required whereas the CE marking under the current GAD is prohibited"*. Another respondent indicated that they thought CE marking of fittings was *"important in relation to Directive 97/23/CE"* (Pressure Equipment Directive) as *"this Directive requires CE marking for accessories"*. Another respondent that agrees with the proposal suggested that the CE marking of fittings would not cause any problems and noted that a number of manufacturers currently CE mark regulators.

Therefore, the addition of CE marking for fittings within the GAD will mirror the requirements under other Directives (i.e. the Pressure Equipment Directive and the Low Voltage Directive etc.), thus preventing confusion for manufacturers when trying to comply with each of these. This will improve the functioning of the internal

market not only in relation to fittings used in gas appliances, but also for other items used in other appliances/applications. The introduction of CE marking for fittings under Option 3 is not considered to have an impact on consumer health and safety because fittings integrated into an appliance are tested and certified together with this appliance. It should be noted that, under the existing GAD, fittings are required to meet the same certification requirements as appliances with the exception of affixing a CE mark. Therefore, CE marking of the individual fittings within the appliance is not considered to improve safety. An improvement in safety may occur for other items that are located between the gas delivery point and the appliance should these be included within the scope of the GAD (as 'components') and this proposal is considered in more detail under Option 5. It is important to note that concrete evidence relating to barriers to trade or safety issues have not been identified for the current situation (no CE marking for fittings). As such further consideration of this aspect has not been undertaken.

Providing the Declaration of Conformity with Appliances

The existing GAD requires the manufacturer (or the authorised representative) to draw up a declaration of conformity, which verifies the product's conformity to type thus ensuring that it is fit for purpose (in terms of quality and safety) and meets the essential requirements of the Directive. A declaration of conformity may cover one or more appliances. This document must be kept by the manufacturer who, currently, has no obligation to supply it together with appliances.

As part of the public consultation, stakeholders were asked whether they thought the declaration of conformity should be provided together with appliances. Table 7.13 indicates that the majority of respondents (62%) were not in favour of this proposal. Analysis of individual stakeholder groups (Member States, Industry, Notified Bodies and Others) responses to this question indicates that the majority in each case do not consider it necessary to provide the declaration of conformity with the appliance.

Table 7.13: Should the Declaration of Conformity be Provided Together with Appliances?

Response	Number of Responses	% of Responses
Yes	25	28
No	55	62
No opinion	9	10
Total	**89**	**100**

Respondents indicate that supplying a declaration of conformity with each appliance is unnecessary for a number of reasons. Firstly, the product's compliance with the provisions of the GAD are controlled by a notified body, therefore, inclusion of the declaration of conformity with the appliance/fitting would not add any value and may lead to confusion as the *"declaration of conformity has no meaning for consumers and users"*. Secondly, the CE marking of appliances effectively acts as a declaration of conformity, which *"should be sufficient to declare that the obligations have been met"*. Also, all the necessary information for safe installation and use of an appliance are provided in the technical instructions supplied with the product. Thirdly, the

declaration of conformity is important for market surveillance authorities and should be kept by the manufacturer to prove the product is in conformity with the requirements of the Directive. Fourthly, a declaration of conformity for products is required in many CE marking Directives (e.g. Restriction of Hazardous Substances Directive, Low-Voltage Directive, Electromagnetic Compatibility Directive etc.). These require detailed information regarding standards to be complied with. Standards reflect the state of the art and therefore the declaration of conformity will need to be updated to reflect this. Hence, *"keeping these documents up to date will consequently place a significant administrative burden and therefore cost on industry"*. Also, if appliances fall within the scope of the Machinery Directive, the declaration of conformity is already provided together with the product. In other cases the manufacturer of an appliance provides all information to the interested consumer on a voluntary basis. Therefore, *"the manufacturer should have the free choice to choose an appropriate instrument to provide information"*. One respondent suggested that a declaration of conformity could be presented on a designated website rather than supplied with the appliance.

Therefore, according to the consultation responses, a requirement to provide declaration of conformity documentation with an appliance is not considered to benefit consumers, but may increase the administrative burden for industry.

Although the majority of respondents to the consultation do not agree with providing the declaration of conformity with the appliance, 25 of the 89 respondents (28%) suggested that there would be certain benefits for adopting this approach. One reason for including the declaration of conformity together with the appliance is that this may be helpful for the installer as this allows them to check that the product complies with the requirements of the GAD. It also increases installer's awareness and instils confidence in the manufacturer that he *"or his representative has done everything possible to minimise the risks"* associated with installation and use of the product. Another argument made for including declaration of conformity documentation with the appliance is that the user can prove more easily that the gas appliance meets the requirements of the GAD. According to one respondent this would make *"market surveillance more efficient"*. One respondent indicated that including the declaration of conformity with the appliance will be useful so that the manufacturer, distributor and the customer are clear regarding their responsibilities, thus ensuring that each party has appropriate knowledge regarding accountability. As previously discussed, other Directives requiring products to bear a CE mark (e.g. the Low-Voltage Directive, Electromagnetic Compatibility Directive) also require the inclusion of declaration of conformity documentation with the product. The addition of this requirement within the GAD would ensure a consistent approach is undertaken across Directives, which may prevent confusion for installers as; currently certain products include a declaration of conformity whereas others do not.

One respondent commenting on the stakeholder consultation undertaken by RPA suggested creating *"a centralised database of certificates of conformity"* which *"should be free to view so that compliance certificates issued by notified bodies can be confirmed easily"*. This could perhaps be used instead of or in addition to including declaration of conformity documentation with the product. However, it is

important to note that no specific problems (in terms of safety issues or barriers to trade) have been identified that would be addressed by including the declaration of conformity with the appliance, as such this will not be considered further.

Alteration of Chimney/Flue Requirements

Respondents to the Public Consultation indicated that gas appliances often consist of an appliance unit/body and a flue system combined. Certifying the appliance as a whole in this manner has proven effective and reliable in ensuring consumer safety.

However, responses received from a number of organisations indicate that this practice has depressed competition from independent chimney/flue manufacturers. As noted by one respondent, the *"system certification* [certification of the appliance body and flue/chimney as a whole] *is being increasingly used by gas appliance manufacturers to prevent competition from independent chimney manufacturers"*.

This practice also creates an interdependence of products which results in *"substantial disadvantages for the consumer"* as well as for independent flue/chimney manufacturers. For example, if a fault were to develop with the flue/chimney and the user insisted in keeping the boiler, an identical chimney/flue would need to be purchased to ensure that the GAD certification and authorisation for use remained valid. Consequently, the use of qualitatively equal and cheaper chimneys from independent producers is prevented.

Under a significantly different GAD regulatory regime, it might be possible for flue/chimneys from independent manufacturers that are regulated by the Construction Products Directive (and Construction Products Regulation, which is due to enter fully into force in July 2013) to be used to replace a faulty flue/chimney of a gas appliance. If this were permitted and deemed not to violate GAD certification or authorisation, competitiveness in trade would be enhanced across the EU, thereby enhancing the functioning of the market. This will also benefit consumers as they will have a greater choice of products and the increased competition should reduce the prices consumers pay.

Stakeholders also commented that flues/chimneys that are regulated by the Construction Products Directive/Construction Products Regulation) can be supplied in accordance with technical requirements for fire protection in buildings (L90 or L30). However, gas appliances that have an integrated flue/chimney and are certified under the GAD are supplied without accordance to the fire protection requirements for buildings. Therefore, according to the respondents, manufacturers have not been accepting liability for construction related fire protection. Stakeholders suggest that the GAD should regulate both type-approved gas appliances and construction related fire protection measures.

Summary

Overall, it would appear that Option 3 could deliver a range of small benefits although there remains considerable uncertainty and limited evidence to suggest that concrete

problems (in relation to consumer safety and barriers to trade) can justify the identified changes. A SWOT analysis of **Option 3: Alignment with the NLF and Technical Updating** with respect to those elements over and beyond those already considered under **Option 2: Alignment with the NLF** is presented in Annex 3.

With this in mind, these elements are not carried forward for further analysis.

7.5 Option 4: Alignment, Technical Updating and Widening of Scope

7.5.1 Aims of the Option

This Option would build on Option 2 and Option 3 by widening the scope of the GAD to include new products (appliances) fuelled by gaseous fuels for which concrete barriers to trade or specific safety issues could be identified.

The aim of this option is to broaden the scope of the GAD to include all non-industrial gas using products. Various suggestions have been made for additional product groups that currently are not but should be included in the GAD. However, in order for these products to be included within the GAD scope some form of justification (in the form of safety issues or concrete barriers to trade) needs to be established.

7.5.2 Defining the Option

As outlined above, Option 4 would include aligning the GAD with the NLF, updating and streamlining the requirements of the GAD in order to improve any identified safety issues and/or prevent barriers to trade as well as extending the GAD scope by including new products (appliances) fuelled by gaseous fuels for which concrete barriers to trade have been identified. Therefore, the approach undertaken for this Option has involved trying to identify any safety issues or barriers to trade that relate to gas appliances currently outside the scope of the GAD (that would therefore benefit from inclusion within the scope of the GAD).

7.5.3 Widening the Scope of the GAD – Preliminary Considerations

Introduction

As outlined above, Option 4 involves aligning the GAD with the NLF (considered under Option 2), technically updating the GAD, in particular the streamlining of provisions to ensure clarity and prevent confusion or misinterpretation (considered under Option 3) and widening the scope of the GAD to include other gas using products.

Consultation with stakeholders has been undertaken in order to obtain details of any problems (in the form of concrete barriers to trade or safety issues) that exist for specific gas appliances. Review of the feedback received to the European

Commission's Public Consultation has also been considered and, where necessary, further consultation has been undertaken.

As part of the European Commission's public consultation stakeholders were asked whether the GAD should be extended to cover gas using products currently outside the scope of the Directive. As indicated in Table 7.14, 71% of respondents indicated that the scope of the GAD should be extended, with only 17% disagreeing with this position. It is also possible to consider the responses received from specific stakeholder groups to identify whether there are any differences in opinion between them. Assessment of the responses provided indicates that the majority of Member State authorities, Industry associations, Notified Bodies and other organisations are in favour of extending the scope of the GAD.

Table 7.14: In your opinion should the scope of the GAD be extended?

Response	Number of Responses	% of Responses
Yes	63	71
No	15	17
No opinion	11	12
Total	**89**	**100**

Stakeholder consultation undertaken by RPA also asked respondents views of whether new product groups should be included in the revised GAD. The responses received are presented in Table 7.15. Approximately 60% of respondents noted that they would like to see new product types included within the scope of the revised GAD. Almost 75% of industry respondents agreed with this position, whereas less than 50% of National Authorities did so. The respondents were also asked to provide details of the types of gas appliances that are currently outside the scope of the GAD, but should be included.

Table 7.15: Responses to the Question: Would you like to see New Product Types included in a Future GAD?

Response	Number of Responses (% of Responses)			
	National Authorities	Industry	Other	Total
Yes	8 (47)	8 (73)	3 (100)	19 (61)
No	6 (35)	3 (27)	0 (0)	9 (29)
Don't know	3 (18)	0 (0)	0 (0)	3 (10)
Total	**17 (100)**	**11 (100)**	**3 (100)**	**31 (100)**

Safety Issues

There is a general paucity of data on safety risks for products either currently covered by the GAD or those that are outside its scope. Follow-up consultation with authorities has also not produced any conclusive evidence of safety risks associated with products that currently lie outside the scope of the Directive.

Extensive searches on the internet have led only to the identification of reports produced by national authorities, with only the RAPEX and ICSMS data providing an indication of any risks associated with products outside the scope of the GAD – in this case gas regulators which we believe would be considered as components rather than as a fitting forming part of the appliance (as discussed further in Section 7.6 below).

Thus, on the basis of the available evidence, there is little to no justification for bringing new products under the scope of the GAD for safety reasons; i.e. there are no concrete identified problems that need to be addressed. The only cases where there have been incidents with products outside the GAD is the one documented case with a blow torch in the Netherlands (whereby a consumer was injured when replacing a gas cartridge because of a lack of suitable instructions) and the RAPEX notifications on regulators and, potentially, hoses.

The overall number of accidents involving gas appliances appears to be low. Of those accidents that do occur, asphyxia and CO poisoning represent a far more significant threat to safety.

Clearly, there continue to be incidents/accidents involving gas appliances, although the majority of these are associated with installation failures rather than safety issues with the appliances. In any event, one would expect that there will be some residual failure rate of gas appliances, their fittings and other items, even with compliance with CE marking requirements.

Barriers to Trade

Stakeholders have proposed that a range of additional products should be brought within the scope of the GAD for both internal market and safety reasons. For example, the WG GAD Rev sets out a long list of gas-using appliances which it believes may be worthy of consideration. Other stakeholders have also provided lists of potential products to be brought within the scope of the GAD. Examples of suggestions for expansions in scope are given below:

- to extend the scope of the Directive to cover all appliances using gas;
- to include regulators;
- to include valves;
- to include hoses;
- to include flame safety devices on domestic cookers;
- to include blow torches or blow lamps;
- to include gas fired nailing machines;
- to include gas fired toilets;
- to include weed burners;
- to include coffee roasters; and
- to include gas absorption chillers.

However, as noted by the Commission, some of these products might already be subject to harmonisation as they fall under other legislation such as the Machinery

Directive, Pressure Equipment Directive, under other national legislation, or may fall under EU legislation concerning safety in the workplace (e.g. on the use of gas blow-lamps or blow torches). Furthermore, as a default, many of these products would also be subject to the requirements of the General Product Safety Directive 2001/95/EC[142] (GPSD) which is applicable to all consumer products, while Regulation 765/2008 applies to all products covered by sector harmonisation directives, including both consumer and non-consumer products.

The discussion provided above in industrial appliances highlights the fact that there is a range of harmonisation legislation that applies to gas using appliances. Many of the same pieces of legislation are likely to be relevant to gas appliances used in domestic settings. Thus, widening the scope of the GAD could raise issues with respect to the creation of legislative interdependencies. These may include the following:

- energy performance of buildings (Directive 2002/91/EC on energy performance of buildings), in particular in relation to gas fuelled appliances used in heating and cooling applications in buildings;
- Directive 2004/8/EC on the promotion of cogeneration based on a useful heat demand in the internal energy market and amending Directive 92/42/EEC;
- Directive 2006/32/EC on energy end-use efficiency and energy services (and repealing Council Directive 93/76/EEC);
- specific product sectors where gas fuelled products are used:
    - Directive 94/25/EC on recreational craft and Directive 2003/44/EC amending Directive 94/25/EC on the approximation of the laws, regulations and administrative provisions of the Member States relating to recreational craft;
    - Directive 2001/56/EC relating to heating systems for motor vehicles and their trailers, amending Council Directive 70/156/EEC and repealing Council Directive 78/548/EEC, Directive 2004/78/EC amending Directive 2001/56/EC of the European Parliament and of the Council relating to heating systems for motor vehicles and their trailers and Council Directive 70/156/EEC for the purposes of adapting to technical progress.

Although a strong consensus to widen the scope exists among Member States and stakeholders, based on the view that the GAD covers mainly products used in domestic or commercial environment, there is currently a lack of evidence as to the extent of any problems in the functioning of the single market with respect to the various listed products/product groups. Consultation has been undertaken with a range of manufacturers and Member State representatives with the aim of collecting

142 **Directive 2001/95/EC of the European Parliament and of the Council of 3 December 2001 on general product safety**. OJ L11, 15.1.2002
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2002:011:0004:0017:EN:PDF
Study on Market Surveillance and revision of GPSD Directive
http://www.europarl.europa.eu/activities/committees/studies/download.do?language=en&file=32451#search=%20GPS%20

such evidence, but no evidence (relating specifically to adverse impacts on the functioning of the internal market) has been forthcoming.

Although, in a few cases, respondents commented on the significant additional costs incurred in exporting products, such as regulators, that are outside the scope of the GAD and the barriers this causes to new companies wishing to sell into other EU markets. However, when asked to provide further supporting evidence none was available.

Thus, there is inadequate justification for widening the scope of the GAD from a 'barriers to trade' perspective. Furthermore, the Commission services asked Member States in May 2008 to present to the Commission their national regulations in relation to gas appliances and other items currently not covered by the GAD and whether these products are subject to any barriers to trade. The Commission notes in the Roadmap that the responses it received did not clarify the situation and that replies from some Member States confirmed that there were no special national provisions and thus "there are not any regulations that create barriers to trade". Only a few replies gave references to general national laws applicable to gas installations.

Therefore, considering that very limited evidence has been forthcoming regarding any concrete safety issues or barriers to trade associated with products that are outside the scope of the GAD, it is not possible to justify the inclusion of additional gas appliances within the GAD. As such this option will not be considered further.

7.6 Option 5: Alignment, Technical Updating and Full Harmonisation

7.6.1 Aims of the Option

This Option would build on Option 2 and Option 3 and would not only include widening the scope of the GAD to include new products (appliances) fuelled by gaseous fuels but also components designed to be parts of the end-user gas installation (i.e. between the gas appliance and the gas delivery point) and future developments and innovations of products in the gas appliance market.

7.6.2 Defining the Option

Option 5 has therefore been separated into three main sub-options:

- **Option 5a**: This option would broaden the scope of the GAD from including 'fittings' within the appliance to components designed to be parts of the end-user installation. Therefore, components would include 'fittings' (within the appliance) as well as those products between the gas appliance and the gas supply point (with the exception of metal piping and meters);
- **Option 5b**: This option would extend the scope of the GAD by including other products which burn (in a conventional manner) natural gas or LPG and could be

used by the non-industrial consumer. This would include such products as gas-powered blow torches; and

- **Option 5c**: This option would broaden the scope of the GAD to account for future innovations in gas appliance technology. For example, in addition to 'conventional' products burning gaseous fuels to appliances that are fuelled by other types of gas and that use this in different ways (aside from burning).

7.6.3 Full Harmonisation of the GAD – Preliminary Consideration

As outlined above, Option 5 involves aligning the GAD with the NLF (considered under Option 2), technically updating the GAD, in particular the streamlining of provisions to ensure clarity and prevent confusion or misinterpretation (considered under Option 3) and extending the scope to include components outside of the gas appliance, but within the installation as well as considering future gas appliance innovations. The possible implications of widening the scope to include components outside of the gas appliance, but within the gas installation (Option 5a), to include other conventional gas burning products (Option 5b) and to include future innovations in the gas appliance sector (Option 5c) are outlined below.

Option 5a – Inclusion of 'Components' within the GAD

Article 1 of the GAD defines fittings as follows:

> *"means safety devices, controlling devices or regulating devices and sub-assemblies, other than forced draught burners and heating bodies to be equipped with such burners, separately marketed for trade use and designed to be incorporated into an appliance burning gaseous fuel or assembled to constitute such an appliance";*

If all of the above devices are manufactured and assembled individually, all will need to meet the safety requirements of the relevant Directive and be appropriately CE marked. Under GAD, where a safety device, control device or regulating device is incorporated into an appliance, the CE mark is affixed only to the appliance and not to the device. Instead a certificate of conformity should be issued declaring the conformity of the fitting with the provisions of the Directive.

It has been suggested that there is a potential extension of the scope of the term 'fittings' to include all components (excluding metal piping and meters) between the 'appliance' and the 'point of gas supply'. Several respondents to the stakeholder consultation for this study made specific reference to regulators and flexible hoses as examples of where there are issues associated with fittings. This is consistent with views expressed during the ***ex-post evaluation study***, with respondents indicating that the current scope of the Directive gave rise to inconsistencies across the EU market through the exclusion of regulators.

As noted above, although both UK and Danish stakeholders have suggested that there may be issues with regard to regulators being outside the scope of the GAD from a

market harmonisation perspective, it is understood that single market issues have been addressed through use of the principle of mutual recognition. In other words, it has been possible for authorities to allow a product to be placed on the market in the destination country through recognition that the product – in this case regulators - have been certified under other Member State standardisation requirements.

Stakeholders were contacted as part of the consultation process and asked whether they agree with the proposal to extend the definition of 'fittings' to include components designed to be parts of the end-user installation. As indicated in Table 7.16, the majority of respondents (82%) suggest that the scope of the GAD should be extended to include components outside of the appliance.

Table 7.16: Responses to the Question: One proposal is to extend the definition of 'fittings' to include the Components Connecting to the Gas Supply. Do you Agree with this Proposal?

Response	Number of Responses (% of Responses)			
	National Authorities	Industry	Other	Total
Yes	15 (83)	6 (75)	2 (100)	23 (82)
No	2 (11)	1 (13)	0 (0)	3 (11)
Don't know	1 (6)	1 (13)	0 (0)	2 (7)
Total	**18 (100)**	**8 (100)**	**2 (100)**	**28 (100)**

Numerous respondents to the European Commission's Public Consultation also commented on the different procedures that apply to fittings (incorporated into an appliance) and components (located between the appliance and the gas supply point). Fittings that are integrated into a gas appliance are certified according to the GAD essential requirement, which is verified by a notified body. However, components that are marketed separately from the gas appliance are certified according to the product standards referred to in the Construction Products Directive/Construction Products Regulation. In this case components' compliance to the requirements of the Construction Products Directive/Regulation is self-assessed by the manufacturer. The GAD focuses specifically on gas risk, whereas the Construction Products Directive/Regulation ensures products are fit for their intended purpose. A number of respondents have commented that components should be included within the scope of the GAD because the Construction Products Directive/Regulation does not adequately cover the safety of components within the gas installation in terms of gas risk.

Some stakeholders have also encountered difficulties regarding components falling under the existing definition as confusion arises depending on the products final location. As discussed above, fittings integrated into a gas appliance fall within the scope of the GAD, whereas components included within the gas installation (i.e. between the appliance and the gas supply point) are covered by the Construction Products Directive/Regulation.

A potentially important aspect identified by one respondent with regard to the CE marking of components was *"when the appliances are built in and when a gas appliance is assembled if a CE marking is affixed to these fittings* [components

between the appliance and gas supply point] *that could bring to a misbelief that the CE marking concerns the end product (i.e. gas appliance)"*. In essence, a CE mark visible on a component outside of the gas appliance may lead to the belief that this represents the CE mark for the whole installation (including the gas appliance).

Overall, the evidence collected to date does not provide convincing market harmonisation arguments for CE markings to be required for components due to the existence of barriers to trade. Also, further consultation and extensive research has indicated that limited evidence exists to suggest that there are specific safety risks associated with components that are currently outside the scope of the GAD.

Option 5b – Including Other Gas Burning Products within the GAD

A number of respondents to the European Commission's Public Consultation suggested replacing the current definition with the following:

> *"The GAD applies to appliances using gaseous fuels for converting it into mechanical, electrical or thermal energy, or for illumination. Heat exchangers to be equipped with forced draught burners are also considered as appliances. Appliances for industrial applications should be excluded"*.

This is similar to the definition of 'appliances' in the Informal Working Document – Outcome of the WG GAD Rev of 22/06/2011, which combines the GAD with the NLF and also alters some of the current text. One respondent, who supported the adoption of the above definition of 'appliances', indicated that the insufficiency of the current definition can be proven by the fact that *"the EC asked all Member States for assessment of the list of products covered by the GAD. The results of this survey gave evidence of a diversified Member State approach"*. Therefore, the adoption of this new definition may further clarify the types of products that are covered by the GAD and prevent any confusion or misinterpretation (thus preventing any restrictions in relation to the functioning of the internal market). The adoption of this new definition for 'appliances' would extend the scope of the GAD to include other products aside from those used for cooking, heating, hot water production, refrigeration, lighting or washing.

With this in mind, Option 5b was intended to extend the scope of the GAD by including other products which burn (in a conventional manner) natural gas or LPG and could be used by the non-industrial consumer. Examples of such products would include blow-torches, gas-fuelled artisanal/hobby products (such as pottery kilns, etc.), cogeneration units, etc. Interestingly, the WG GAD Rev has already identified a range of potential exclusions that could apply if the scope of GAD was broadened as indicated in Table 7.17.

Table 7.17: Proposed Products/Scenarios to be Excluded from a Revised GAD	
Product/Scenario	**Justification**
Appliances and components specifically designed for use in industrial processes carried out on industrial premises	As discussed above, the GAD is not suitable for regulating products used in the industrial process, particularly as equipment within this sector is often custom made for a specific purpose. Furthermore, not only do other Directives (such as the Machinery Directive) sufficiently regulate industrial equipment, the provisions of the GAD would not enhance the safety of the equipment for operatives. Consequently, the exclusion should be maintained
Appliances and components specifically designed for the propulsion system of motor vehicles using gaseous fuels	There are numerous Directives that regulate the safety and performance of motor vehicles. If this exclusion were not present, the GAD would overlap with existing Directives and impose additional administrative and economic costs on manufacturers, with no noticeable improvement in safety
Gas installations covered by Commission Directive 2004/78/EC of 29 April 2004 amending Directive 2001/56/EC of the European Parliament and of the Council relating to heating systems for motor vehicles and their trailers and Council Directive 70/156/EEC for the purposes of adapting to technical progress	Directive 2004/78/EC and Council Directive 70/156/EEC both have a narrow scope, regulating motor vehicles and trailers, with the former focused on the hazards relating to their heating systems. The specific manner in which these products and hazards are regulated justifies their exclusion from the scope of the GAD
Gas fuelled propulsion engines (or: "appliances") covered by European Parliament and Council Directive 94/25/EC of 16 June 1994 on the approximation of the laws, regulations and administrative provisions of the Member States relating to recreational craft	Council Directive 94/25/EC of 16 June 1994 contains detailed and technical Essential Requirements under Annex I. Thus the GAD could not enhance the safety of gas fuelled propulsion engines by bringing them within the scope of the Directive
Appliances and components specifically designed for use on aircrafts and railways	A similar general exclusion is also contained within the Low Voltage Directive (LVD). Both the GAD and the LVD employ this exclusion in recognition of the fact that appliances and components designed for use on airways and railways will have different parameters to that of typical GAD goods. For the design and construction of these appliances and components will need to take into account additional stresses and pressures to ensure the vehicle can be used safely
Self-containing products with an internal reservoir of no more than 50ml of liquid gas	This exclusion will exclude gas lighters used for igniting cigarettes, pipes, cigars, paper, wicks, candles etc. Justifications for excluding these products from the scope of the GAD include: • the operation of gas lighters is different to gas appliances, as its ignition and continued function is dependent on operation by the user. Conversely, a gas appliance needs only to be ignited by the user, which in the case of thermostat can occur automatically. Following ignition, a gas appliance will continue to function until the user shuts it off manually, a safety device is engaged initiating shut down, or when the gas

Table 7.17: Proposed Products/Scenarios to be Excluded from a Revised GAD	
Product/Scenario	**Justification**
	supply runs out; • it is not necessary to harmonise legislation or technical requirements for gas lighters as there is no known obstacles to their free movement of trade; and • if gas lighters were brought within the scope of the GAD, the safety would not be enhanced. It would however still result in additional administrative burdens and economic costs on manufacturers. The extension in scope and additional costs cannot be justified unless safety is enhanced
Heater systems for hot air balloons	The regulation of aviation equipment poses novel hazards that must be taken into account and stringently regulated. The GAD is ill-equipped to address such matters and therefore defers to more specific legislation designed to regulate those risks associated with aviation
Appliances and components specially designed and constructed for research purposes for temporary use in laboratories	Appliances and components used within the research sector may be custom built for a specific purpose or operation. It may also have been designed to operate and function in an unsafe manner for the purpose of science. The GAD is not equipped to deal with bespoke equipment efficiently and there are more suitable and specific Directives that regulate equipment used for the purposes of research
Source: Informal Working Document – Outcome of the WG GAD Rev of 22/06/2011	

However, in order to proceed to consider inclusion of such products, the same test would apply as already considered in Option 4 - i.e. are there concrete barriers to trade or specific safety issues? As before, the answer is that none have been identified and so Option 5b is not considered further.

Option 5c – Inclusion of Future Innovations

In addition to the responses to the Public Consultation considered above, other responses highlighted the importance of broadening the scope of the 'appliance' definition to include future innovations and technical developments within the gas appliance sector. One respondent noted that *"it is of utmost importance to take into consideration the technical evolution of the products so new technologies should be taken into consideration where the gas is no longer 'burnt' but 'used' in a different way"*. Altering the definition to include such appliances, may remove any barriers to trade or reduce/prevent any safety issues experienced, thus benefiting manufacturers as well as consumers. However, this may also lead to an unnecessary administrative burden and increase in costs for industry if there is no evidence to suggest that the current regulatory situation is ineffective.

Evidence obtained from the public consultation indicates that a number of stakeholders suggest including newly available fuels (such as hydrogen and fuel cell based appliances) into the GAD as currently only limited gaseous fuels (e.g. natural gas and LPG) are covered. One respondent noted that *"there are grey areas between*

the appliances rules by the GAD and industrial appliances" and suggested that *"this kind of definition creates grey areas concerning other usages and other appliances, for instance fuel cells, and consequently those gaps allow a lack of accountability"*. Inclusion of newly available fuels within the 'appliance' definition may restrict these gaps, thus allowing all products using gaseous fuels to be considered and regulated in the same manner. This should help ensure consistency across the market as well as enhance market functionality.

Another respondent also noted that the term 'burning gaseous fuels' within the definition excludes appliances "*converting gaseous fuels in another way and intended for the same purpose/function of appliances now covered by the current GAD"*. Therefore, the current inclusion of the term 'burning gaseous fuels' is considered to restrict certain appliances from inclusion within the scope of the GAD. For example, fuel cell appliances for room heating (a new technology) are formally excluded from the GAD and, therefore, are not able to profit from the advantages of the free European market to the same extent as the gas burning central heating boilers. Therefore, broadening the scope of the Directive by altering the 'appliance' definition may enhance the functioning of the internal market as more gas appliances are covered. However, this would only result in benefits if, under the current regime, manufacturers were experiencing barriers to trade or safety concerns had been raised by consumers.

It should be noted that there is no evidence (i.e. safety issues etc.) to justify the inclusion of innovations or future products using gaseous fuels from the fields of cooling and power generation. Therefore, inclusion of these within the scope of the GAD should only occur if safety issues/trade barriers have developed as a result of the existing regulatory situation and inclusion of these products within the scope of the GAD is considered to reduce or prevent the identified problems.

A number of respondents disagree with the inclusion of the 'new' appliance definition as presented in the informal working document of the revised GAD. These respondents indicate that this 'new' definition will mean that all products using gaseous fuel to convert into mechanical, electrical or thermal energy will be included within the scope of the GAD for the first time. Therefore, the present scope of the GAD (thermic conversion procedures such as burning gaseous fuels for cooking, heating, hot water production, refrigeration, lighting or washing), will be extended to include all converting transmutation procedures of gaseous fuel. These converting procedures are predominated in the industrial practice. The Machinery Directive and the harmonised European standards already cover the hazards that could occur while using gaseous fuel for heating in an adequate manner. To concretise the requirements of the Machinery Directive, harmonised type – C standards have been created and are applicable – including the safety requirements for combustion and fuel handling systems for gaseous, liquid and solid fuel. Although adoption of this new definition of 'appliances' may broaden the GAD scope as well as clarifying the products that are included, it may also have the opposite effect in certain situations. This definition may lead to the confusion of manufacturers as to which Directive (either the GAD or Machinery Directive) certain, predominantly industrial, products are regulated under.

Inclusion of future products and innovations within the scope of the GAD could be seen as a pro-active approach that would ensure harmonised requirements for these products going forward (thus preventing issues relating to safety or barriers to trade). However, extensive research and consultation has failed to identify any safety issues or barriers to trade, which suggests that inclusion of future innovations within the scope of the GAD is unlikely to result in any benefits. Currently the inclusion of these products could be considered as no more than regulation for the sake of regulation.

Summary

Overall, it would appear doubtful that Option 5 (and, indeed, Option 4) would deliver any benefits although there remains considerable uncertainty and, as such, have not been carried forward for further analysis.

A SWOT analysis covering both **Options 4 and 5** with respect to those elements over and beyond those already considered under **Option 3: Alignment with the NLF and Technical Updating** is presented in Annex 3.

8. ANALYSIS FOR OPTION 2: ALIGNMENT WITH THE NLF

8.1 Introduction

As discussed in Section 7.3, the purpose of the New Legislative Framework (NLF) is to strengthen the effectiveness of the European Union's legislation relating to product safety, implementation mechanisms and to ensure a greater consistency throughout all the different economic sectors. The NLF also supports the European Union's policy of simplifying regulations and reducing the administrative burden for both National Authorities and industry.

In light of this it is a requirement that the current GAD is aligned with the NLF (as has been the case for other European Directives) to further strengthen the effectiveness of the Directive particularly in relation to public health and safety and ensuring free movement of gas appliances between Member States.

The preliminary analysis undertaken in Section 7.3 (and Section 7.4 in respect of Essential Requirement 1.2.1) outlines the implications of the following measures:

- Requirement to keep technical documentation and declaration of conformity for a period of 10 years;
- Further clarification of the procedure for dealing with appliances or fittings presenting a risk at national level;
- Introduction of accredited in-house bodies;
- Altering the safety philosophy of the GAD by allowing the choice of the EC-type examination method used;
- Introduction of more demanding market surveillance requirements;
- Addition of obligations for importers and distributors; and
- Addition of manufacturer requirements to include in the instructions accompanied with the appliance details of the method that should be undertaken to assess the safe combustion of appliances at the time of commissioning and after servicing or maintenance into (Essential Requirement 1.2.1).

The sections below further describe these identified changes (of aligning the GAD with the NLF compared to the current situation), outline the main problems/issues (should these exist) that the proposed change attempts to address, attempts to estimate the likely costs and benefits of adopting the change on relevant stakeholders and ultimately suggest how this should proceed into the future.

8.2 Requirement to Keep Technical Documentation & Declaration of Conformity

8.2.1 Possible Changes

The GAD in its current form does not set any specific time period over which manufacturers must retain technical documentation on an appliance, including the EC declaration of conformity. It states "*the manufacturer or his authorised representative established within the Community must affix the CE marking to each appliance and draw up a written declaration of conformity. This declaration may cover one or more appliances and must be kept by the manufacturer*".

It is assumed here that in aligning the GAD with the NLF, a specific time period would be established over which manufacturers would be required to keep such documentation. In line with the informal proposals of the Working Group GAD and the NLF more generally, we assume that this period would be for 10 years after the appliance or fitting has been placed on the market. As part of these requirements, manufacturers would need to keep the documentation at the disposal of national surveillance authorities. Similarly, economic operators would be required to present such information to any other economic operator for a period of 10 years after they have supplied or have been supplied with an appliance or fitting.

8.2.2 Potential Issue being Addressed

Market surveillance authorities have indicated that it has been difficult in the past to trace some products giving rise to safety or non-conformance issues to the original manufacturer. In such cases, it makes it difficult for authorities to agree an appropriate course of action with manufacturers, having to rely instead on a mandatory withdrawal of the product from the EU market in order to minimise any health and safety impacts.

This is supported to a limited degree by the RAPEX data, as reported in Section 5.2.2. Around 63% of the notifications to RAPEX in the period from 2005 to 2012 have concerned imported goods. Although it is difficult to interpret the data due to a lack of detail, it would appear that there could have been traceability issues in up to 50% of cases, with sales bans being placed on 40% of the products produced in the EU which were subject of a notification, suggesting that there may have either been traceability issues or a lack of cooperation with market surveillance authorities.

8.2.3 Impact of Adoption

Specifying a timeframe over which documentation should be kept will provide clarification for manufacturers and may reduce storage/administration costs for those manufacturers that currently keep this documentation for over 10 years. Similarly, it will lead to an increase in costs for those manufacturers that currently keep their documentation for less than 10 years (e.g. because of increased storage and/or administration costs). However, these costs are unlikely to be significant considering the possibilities for electronic storage of such documents.

Table 8.1 sets out estimates of the administrative burden arising from the above requirement, assuming that such documentation is not retained for a period of 10 years. These estimates include an allowance for all economic operators within the supply chain, including manufacturers of gas appliances, importers of appliances into the EU, EU distributors of appliances and retailers. The number of manufacturers has been estimated using Ecorys (2009). Estimates for the number of importers has been calculated on a pro rata basis, comparing the value of imports to the value of EU produced gas appliances. The estimate of the number of distributors has been based on figures for other sectors, for example, on the number of distributors who are members of the European Federation of Chemical Companies. Figures for the number of retailers have been drawn from Prodcom and are based on retailers of electrical appliances, who are assumed here to also sell gas appliances (i.e. they will not only sell an electric oven but also a gas oven).

As can be seen from Table 8.1, the per annum costs are estimated at between €415,000 and €735,000 depending on the assumptions made concerning the number of economic operators that would newly incur such costs. Over the ten year mandatory record keeping period, these costs would equate to between €3.4 million and €6.0 million (present value estimates discounted at 4%).

Table 8.1: Costs of Maintaining Technical Documentation (€)

Number of operators	**Low Estimate**	**Middle Estimate**	**High Estimate**
Manufacturers	20,000	30,000	35,000
Importers/traders	500	1,000	1,500
Distributors	1,000	1,400	2,000
EU Retailers	20,000	30,000	35,000
Cost per economic operators per annum (€)	10	10	10
Total per annum costs (€)	415,000	624,000	735,000
Total discounted costs over 10 year period (€, at 4%))	3,400,000	5,100,000	6,000,000

Note: Values presented to two significant figures.

Adopting this record keeping requirement would not only ensure that a consistent approach is undertaken by all EU manufacturers of gas appliances and fittings towards the up-keep of documentation, but will also help ensure that retailers and others also retain such information.

Creation of a mandatory paper trail across all operators should help minimise the burden placed on surveillance authorities, when non-compliant or unsafe gas appliances are identified as having been placed on the market. It should also help ensure that such appliances are more quickly removed from the EU market, with this not including the market in the country whose national authorities first identified the non-compliance issue but also other EU Member States. This could enhance public health and safety.

8.2.4 Summary

It is evident that the introduction of a requirement within the GAD (as a result of alignment with the NLF) for economic operators to keep technical documentation and conformity assessment documentation could result in potential costs, particularly to those organisations that currently keep documentation for less than the 10 year period. Assuming that this documentation is not retained for 10 years, it is estimated that the total annual cost of keeping the relevant documents is between €415,000 and €735,000. This equates to between €3.37 million and €5.96 million (present value estimates discounted at 4%) over the ten year mandatory record keeping period.

However, the adoption of this requirement would help ensure a consistent record keeping process is undertaken across the EU. This should ensure that relevant documentation is retained, thus assisting surveillance authorities in efficiently tracing products entering the market that are considered unsafe and do not comply with the essential requirements of the GAD.

8.3 Procedure for Dealing with Appliances or Fittings Presenting a Risk at National Level

8.3.1 Possible Changes

As noted earlier, Article 7 of the existing GAD outlines the procedure that should be undertaken by Member States when a potential safety risk relating to an appliance is identified at the national level. Member States are required to take all appropriate measures to withdraw such appliances from the market and prohibit or restrict the appliances from being placed on the market.

Under this sub-option, Article 7 of the GAD would be replaced with Articles R31 and R32 of the NLF. This change would essentially add to the provisions contained in the current GAD by providing greater detail regarding the requirements of economic operators should an appliance or fitting demonstrate safety risks at a national level.

However, the Commission services have advised that there will be a new Regulation on Market Surveillance, which should incorporate the relevant articles on market surveillance from Decision No. 768/2008/EC. Assuming this is the case, then it would not be necessary to integrate Articles R31 to R34 into sector specific legislation[143].

8.3.2 Potential Issue being Addressed

This sub-option is considered here as it is relevant to the alignment of the GAD with the NLF. However, it is important to note that no specific issues have been raised by stakeholders to suggest that the existing procedure for dealing with appliances presenting a risk at national level is inadequate or that further clarification is required.

[143] e-mail from DG Enterprise Unit C1 (forwarded to RPA on 7 June 2012).

8.3.3 Impacts of Adoption

Adoption of the new NLF provisions is not considered likely to result in an improvement in safety compared to the existing situation because the fundamental safety aspects remain the same within both the current and proposed versions.

However, the NLF revision does provide clarification and details of the contingency measures that are to be undertaken if an economic operator fails to take appropriate corrective action, which may assist with improving the functioning of the internal market and assurance of a level playing field for all operators.

It is also likely to clarify the situation for economic operators importing products from outside the EU. Further clarification is provided with the addition of the two month timescale over which objections can be made regarding the provisional measures undertaken by a Member State in light of the risks identified regarding a specific appliance/fitting. This clarification will assist the understanding of market surveillance authorities and economic operators if such an event occurs.

8.3.4 Summary

The proposed changes to the GAD as a result of alignment with the NLF is not considered to have a significant impact on consumer safety as the relevant provisions remain fundamentally the same as in the existing GAD. However, alignment of the GAD with the NLF does provide further clarification of the contingency measures to be undertaken if an economic operator fails to take appropriate corrective action when a product is found to be in breach of the Directive. This will also help clarify the situation with regards to the import of products from outside the EU.

8.4 Introduction of Accredited In-House Bodies

8.4.1 Possible Changes

The existing GAD requires EC-type examination to be undertaken by a third party notified body. However, Module C2 of the NLF introduces a potential choice between third party product certification or the use of accredited in-house bodies to undertake testing in relation to product conformity to type (as presented in the draft revised version of the GAD developed by the Gas Appliance Directive Working Group).

It is therefore presumed that manufacturers will be able to use their own in-house product verification unit to officially undertake conformity assessment checks, thus certifying the product for sale on the EU market. However, it is noted in the informal working document of the revised GAD that the option of whether a manufacturer chooses between the use of an accredited in-house body or a third party notified body (based on the provisions of the NLF) has not yet been finalised. Hence, further consideration of this proposed change to the existing Directive is undertaken below.

8.4.2 Potential Issue being Addressed

Theoretically, it is possible that allowing certification by accredited in-house bodies may provide benefits to some manufacturers of gas appliances, particularly where production methods vary on a regular basis due to differences in the requirements for different end uses or where a manufacturer is involved in the production of more innovative products or in one-off products. Establishing an accredited in-house body to undertake product testing and ultimately certification is likely to result in a reduction in costs compared to the current situation, whereby third party verification using a notified body is required.

However, it is important to note that no evidence has been provided to suggest that moving from third party certification to in-house conformity assessment would solve a particular problem currently experienced. 79 of the 89 respondents to the European Commission's public consultation indicated that they would not be in favour of introducing accredited in-house bodies into the scope of the GAD. Of the 10 respondents noting that this would be a positive step, none provided any evidence to suggest significant shortcomings with the existing approach.

Although, no specific problems have been identified with the current use of third party notified bodies, it is possible that the use of accredited in house notified bodies may offer certain (previously unidentified) benefits compared to the present declaration of conformity procedure. Equally, there may be cost savings associated with the use of accredited in-house bodies compared to third party notification bodies. Considering that the alignment of the GAD with the NLF is a necessary undertaking the impact of this change in certification procedure is assessed below.

8.4.3 Impact of Adoption

As indicated above, the majority of stakeholders responding to the European Commission's public consultation indicated that they would not support the introduction of accredited in-house bodies within the scope of the GAD. A key area of concern raised by a number of respondents related to the independency of the conformity assessment process when undertaken by an accredited in-house body. The independency of the third party notified body helps ensure the impartiality of the assessment procedure, allowing a fair and unbiased evaluation of the product's conformity to type, which should limit the number of non-conforming or unsafe products entering the EU market.

Therefore, allowing manufacturers the possibility of establishing an accredited in-house body may be considered to detrimentally impact the independency of the conformity assessment process. This in turn may affect the impartiality of the assessment procedure, as the manufacturer has an increased ability (compared to third party assessment by a notified body) to influence the outcome of the tests. This procedure has the potential (in some instances) to effectively remove the 'neutral' view of the third party notified body and provide manufacturers with a greater opportunity to influence the assessment of their product lines. Through the influence

of market demands and pressures, it is possible that products are placed on the market that do not meet the required quality or safety standards, thus potentially leading to an increase in the number of product failures and detrimentally impacting consumer health and safety.

However, it is important to note that both notified bodies and accredited in-house bodies are required to meet various standards to prove their competence and independency when undertaking product conformity checks. These standards include EN ISO/IEC 17020 (*General criteria for the operation of various types of bodies performing inspection*) and EN 45011 (*General requirements for bodies operating product certification systems*). EN ISO/IEC 17020 specifies general criteria for the competence of impartial bodies performing inspection as well as independence criteria. EN 45011 specifies the general requirements that a third-party operating a product certification system needs to comply with if it is to be recognised as competent and reliable. The description of the standard also states that whilst it relates to third-parties providing product certification, many of its provisions may also be useful in first and second party product conformity assessment procedures. Therefore, both third-party notified bodies and (if selected) accredited in-house bodies certifying gas appliances would be required to comply with these standards. These should help ensure that the independency and unbiased nature of the conformity assessment process, when undertaken by third party notified bodies, is maintained for accredited in-house bodies. Even with these standards in place the independency of the product assessment procedure cannot be guaranteed, perhaps to the level achieved when using a third party notified body.

Also, the use of accredited in-house bodies may result in cost savings for those manufacturers willing and able to introduce this into their organisation. This is because a product conformity assessment is consider to cost less when using an in-house system compared to a third party notified body.

Potential Cost Savings (Benefits)

In order to estimate the likely scale of cost savings (benefits) attributable to using an accredited in-house body instead of a third party notified body a series of assumptions have been used. In each case three estimates are provided (low, middle and high) in order to provide a range of costs (savings) that could potentially be achieved through the use of accredited in-house bodies.

Due to the lack of specific industry data it has been necessary to estimate the number of gas appliance manufacturers and the number of new gas appliance product lines produced on an annual basis in the EU (see Table 8.2).

Table 8.2: Estimate of the Number of Gas Appliance Manufacturers and the Total Number of New Product Lines Produced on an Annual Basis			
	Low Estimate	**Middle Estimate**	**High Estimate**
No. of Manufacturers	20,000	30,000[1]	35,000
% of Manufacturers	*30%*	*50%*	*100%*
No. of Product Lines	6,000	15,000	35,000
[1] *A study undertaken by ECORYS for the European Commission – 'Study on the Competitiveness of the EU Gas Appliance Sector' in 2009 indicates that there were approximately 30,000 gas appliance firms in 2006 - http://ec.europa.eu/enterprise/sectors/pressure-and-gas/files/study_competitiveness_eu_gas_appliances_final_en.pdf.*			

Based on the ECORYS 'Study on the Competitiveness of the EU Gas Appliance Sector' (2009), it is estimated that there are between 20,000 and 35,000 gas appliance manufacturers in the EU, with a middle estimate of 30,000. In order to estimate the number of new product lines developed on an annual basis, it has been assumed that (in the case of the low estimate) 30% of gas appliance manufacturers (20,000) will introduce a new product line on an annual basis.

In the case of the middle estimate it is assumed that 50% of the 30,000 manufacturers will introduce one new product line and for the high estimate, 100% of the 35,000 manufacturers introduce a new product line. It is recognised that in each case certain manufacturers may introduce more than one new product line in a given year, whilst other manufacturers will not. Therefore, the values presented above are indicative average figures.

The next stage is to consider the cost of undertaking conformity assessment procedures per product when using a third party notified body versus an in-house accredited body. For this process it has been assumed that manufacturers undertake some form of internal product verification procedure in order to check the appliance meets the relevant criteria before testing is undertaken by a third party notified body. Thus, an in-house product verification system is considered to already be present in most (particularly larger) organisations and the cost of this procedure will remain regardless of whether a third party notified body or accredited in-house body is used for the final assessment.

The cost savings anticipated by being able to undertake in-house conformity assessments would be related to no longer having to transport an appliance to a notified body and paying them for setting up test conditions and preparing documentation. Although such work will be required in-house, the activities are likely to be more streamlined. Table 8.3 provides estimates of the differences in conformity assessment costs when undertaken by a third party or in-house.

Table 8.3: Estimate of the Cost of Product Conformity Assessment Undertaken by a Third Party Notified Body or an In-house Body			
Process	**Additional Cost per Product Line (€)**		
	Low Estimate	**Middle Estimate**	**High Estimate**
Third Party	2,000	5,000	10,000
In-house	1,000	3,000	7,000
Note: *It should be noted that the figures presented above represent the additional costs like to be incurred when undertaking product conformity assessment and does not include the costs of internal verification by the manufacturer (as these are assumed to be the same regardless of whether a third party notified body or in-house body is used).*			

As indicated in Table 8.3, it is assumed that the cost to manufacturers of seeking conformity assessment for a single product line through the use of a third party notified body is between €2,000 and €10,000. In the case of using an accredited in-house system, it is assumed that the costs will be between €1,000 and €7,000. The potential cost savings are estimated to range between €1,000 and €3,000 per product, depending on the complexity of the assessment procedure.

The figures presented in Tables 8.2 and 8.3 can be combined to provide an estimate of the total potential savings associated with allowing the use of accredited in-house bodies. To facilitate this process, three scenarios have been developed:

1. The first estimates the costs of the current situation, whereby all new product lines are required to undergo conformity assessment by a third party notified body;
2. The second scenario assumes that (should the option of including in-house bodies within the GAD be accepted) all manufacturers will certify their products using accredited in-house bodies; and
3. The third scenario assumes that (should the option of including in-house bodies within the GAD be accepted) 70% of manufacturers will continue to use third party notified bodies with the remaining 30% using accredited in-house bodies to carry out conformity assessment procedures.

Table 8.4 (overleaf) provides the cost estimates under each of the scenarios outlined above. It is therefore assumed that in the current situation, whereby all new product lines require conformity assessment via a third party notified body (Scenario 1), the total annual costs for EU manufacturers (not including the cost of internal product verification processes) is estimated to range between €12m and €350m. Under Scenario 2, it is assumed that the NLF requirement (allowing manufacturers the choice of selecting accredited in-house bodies in addition to third party notified bodies) is brought forward into the GAD resulting in all new product lines undergoing conformity assessment using accredited in-house bodies. This yields savings of €6m and €110m.

Table 8.4: Estimate of the Total EU Cost of Using Third Party Notified Bodies and Accredited In-house Bodies for Conformity Assessment Activities

Scenario	Process	Total Annual Cost (€)		
		Low Estimate	Middle Estimate	High Estimate
1 (Current Situation)	Third Party (100%)	12,000,000	75,000,000	350,000,000
2	In-house (100%)	6,000,000	45,000,000	250,000,000
3	Third Party (70%) In-house (30%)	10,000,000	66,000,000	320,000,000
Comparison				
Moving from 1 to 2	Cost Saving	6,000,000	30,000,000	110,000,000
Moving from 1 to 3	Cost Saving	1,800,000	9,000,000	32,000,000

Note:
Scenario 1 *estimates the cost of undertaking product conformity assessment activities using third party notified bodies in the current situation (all product lines are assessed by third parties);* ***Scenario 2*** *estimates the cost of undertaking product conformity assessment activities assuming all product lines are assessed using accredited in-house bodies; and* ***Scenario 3*** *estimates the cost of undertaking product conformity assessment activities assuming 70% of product lines are assessed using third party notified bodies and 30% using accredited in-house bodies.*
It should be noted that the figures above are presented to two significant figures.

For Scenario 3, the total additional annual cost savings is estimated between €1.8m and €32m, with a middle estimate of €9m. This is considered a much more realistic assumption of the cost savings potentially experienced by EU manufacturers as it is unlikely that all would wish to move to accredited in-house bodies.

Potential Impacts on Safety

As discussed in Section 7.3.3, there is some disquiet about the implications of moving from the use of third party notified bodies to accredited in-house bodies due to the possibility that levels of safety of products reaching the EU market might decrease.

It is possible to consider the trade-offs between cost savings and reduced levels of safety using a value of a human life. According to ExternE (2004)[144] the value of a human life is €2 million. The costs associated with a human being receiving a serious injury from a gas related incident is much more difficult to establish as no specific values have been identified. As a result Department for Transport road accident data relating to the cost of a serious injury (€26,000)[145] has been used as a proxy for determining the scale of costs that may be associated with gas related incidents. In any event, it is clear that the value of a life far outweighs that of an injury.

An example of how the value of a life may be compared with cost savings is presented in Table 8.5.

144 As referenced in the European Commission's Impact Assessment Guidelines.

145 DfT (2011). The Accidents Sub-Objective. TAG Unit 3.4.1. Department for Transport, UK, April 2011. Available from http://www.dft.gov.uk/webtag/documents/expert/pdf/unit3.4.1.pdf

Table 8.5: Estimated Additional Annual Number of Deaths that Could Occur for the Savings in Costs Experienced as a Result of Using Accredited In-house Bodies Instead of Third Parties				
Scenario	**Process**	**Estimate**	**Annual Cost Savings (€)**	**Equivalent Number of Fatalities (@€2m/life)**
3	Third Party (70%) In-house (30%)	Low	1,800,000	1
		Middle	9,000,000	5
		High	32,000,000	16

Table 8.5 indicates that, under the middle estimate, the savings of €9m per annum would provide net benefits if the annual numbers of gas-related deaths increased by less than five (representing less than 3% of total gas-related deaths). In other words, if it was felt that changes to the use of accredited in-house bodies would only make a marginal difference to the numbers of fatalities then the benefits (cost savings) would outweigh the costs (slight increase in numbers of fatalities).

Of course, there is no evidence to suggest that in-house certification would lead to such increases in deaths (or injuries) resulting from gas appliance failures, particularly as (detailed above) these bodies are accredited by national accreditation authorities (the same process that ensures the competence of third party notified bodies).

8.4.4 Summary

It is evident from the estimates presented above that manufacturers could experience potential cost savings through the adoption and use of accredited in-house bodies to undertake conformity assessment activities instead of third party notified bodies. Scenario 3 (considered to contain potentially more realistic assumptions compared to Scenario 2) estimates that the use of accredited in-house bodies to assess 30% of new product lines could result in annual EU savings of between €1.8m and €32m compared to the current situation, whereby all products are assessed by third parties.

However, the use of accredited in house bodies may reduce the independency of the assessment process, thus potentially increasing the likelihood of manufacturers influencing the final conformity assessment result. This in turn may lead to an increase in the number of products entering the EU market that are not perhaps of adequate quality, thus causing an increase in gas incidents resulting in associated deaths and/or injuries.

It is important to note that there is no evidence to suggest that using accredited in-house bodies would increase the risk of unsafe products entering the market or any resulting deaths or injuries. This is particularly the case considering that accredited in-house bodies are required to meet relevant international standards to ensure that they operate independently of the product manufacturer (for example, is separate from the design and production of the appliance) as well as to guarantee the quality of the assessment procedure. These are effectively the same standards that third party notified bodies are required to abide by.

Therefore, a degree of cost savings for manufacturers may be experienced through use of accredited in-house bodies; however, there is the potential that this would result in an increase in the number of unsafe products entering the market. Even if this is not the case, respondents to the public consultation prefer the use of third party notified bodies to ensure a truly independent product assessment is undertaken.

8.5 Altering the Safety Philosophy of the GAD

8.5.1 Possible Changes

The existing GAD (under Annex II) requires the EC-type examination of products to always be carried out by checking that an appliance, representative of the production envisaged, meets the applicable provisions of the Directive. This includes both the examination of the design documentation and verification of the type.

However, according to Module B of the NLF (768/2008/EC), EC-type examination may be carried out in one of the following three ways:

- Examination of a specimen, representative of the production envisaged, of the complete appliance or fitting (production type);
- Assessment of the adequacy of the technical design of the appliance or the fitting through the examination of the technical documentation and supporting evidence, plus examination of specimens, representative of the production envisaged, of one or more critical parts of the appliance or the fitting (combination of production type and design type); or
- Assessment of the adequacy of the technical design of the appliance or the fitting through examination of the technical documentation and supporting evidence, without examination of a specimen (design type).

The introduction of these EC-type examination provisions allows a choice regarding which of the provisions should be selected and used to assess the product's conformity to type. The decision of which product examination method used is likely to fall to the notified body, however, competition between these bodies may mean that some suggest undertaking full examination (of the product, the production process and technical documentation) whilst others may suggest using the least stringent option (assessment of the relevant technical documentation) as suitable proof of compliance to the essential requirements of the GAD. In this situation manufacturers would have the choice of which notified body to select and effectively of the type examination process to be used. This introduction would, therefore, lead to movement away from the Directive's current safety philosophy, which requires the product itself to undergo examination.

However, it is noted in the informal working document of the revised GAD that the option of whether the choice can be made between the type examination processes has not yet been finalised for inclusion within the scope of the GAD. It should be noted that stakeholders have raised concerns regarding the impact this approach may have

on consumer health and safety, particularly in the situation whereby only the technical documentation is assessed rather than the product itself. The adequacy of this situation is questionable considering that certain issues with a product may only be identifiable on inspection/assessment of the actual product itself. In light of the above, further consideration of this proposed change to the existing Directive is undertaken in greater detail below.

8.5.2 Potential Issue being Addressed

It is possible, in certain situations, that allowing notified bodies (and subsequently manufacturers) the choice of type examination process for products may result in benefits (in terms of cost savings) for manufacturers. For example, certain stakeholders have suggested that, in the case of products that are produced on a relatively infrequent, it is possible the product type has not changed. Therefore, in this situation assessment of the technical documentation may be considered adequate enough to ensure product conformity to type, whereas a full assessment of the product and associated documentation may be an unnecessary waste of resources, particularly if the product has not changed.

However, it is important to note that no evidence has been provided to suggest that the current procedure of requiring both the complete product and the associated technical documentation to be checked in order to confirm (or otherwise) conformity to type is inadequate or over-burdensome. When asked whether the current safety philosophy of the GAD should be maintained (require all products to undergo full examination to establish conformity to type) or modified (allowing the choice of one of the above three options), the majority of respondents (72 of 89 or 81%) indicated that the safety philosophy of the GAD should be maintained. Of those respondents suggesting that the safety philosophy could be modified, none provided specific details of any particular failings or problems associated with the current regime.

Despite the fact that no specific problems have been identified with regard to the current requirement of ensuring that both the product and technical documentation are assessed as part of the EC-type examination process, it is possible that allowing the choice of less stringent assessment options may offer certain benefits (in terms of cost) savings. Equally, allowing the choice of alternative type examination may result in potential costs, which also need to be taken into account. Considering that the alignment of the GAD with the NLF is a necessary undertaking and also noting that no final decision within the Gas Appliance Directive Working Group informal working document has been agreed upon, the impact of this change to the safety philosophy of the GAD is assessed below.

8.5.3 Impact of Adoption

As indicated above, the majority of stakeholders responding to the European Commission's public consultation indicated that they would not support modifying the safety philosophy of the GAD by providing the opportunity for notified bodies (and manufacturers) the choice between the process used to assess a products conformity to type. One of the main areas of concern expressed by stakeholders is

that the selection of a less stringent conformity assessment option (i.e. examination of the relevant technical documentation and supporting evidence) is inadequate for ensuring that the product conforms to type, meets the obligations outlined in the essential requirements of the GAD and, thus, is safe to use. A number of respondents suggested that examination of the actual product is the most adequate method of ensuring that the stated requirements have been met.

Therefore, allowing notified bodies (and manufacturers) the choice of type examination option may be considered to detrimentally impact the quality of the type examination process (as fewer concrete products are assessed and instead only key parts or relevant documentation is analysed). This may result in an increase in the number of products entering the EU market that are perhaps inadequately assessed, leading to operational issues and potential safety concerns. The influence of market demands and pressures may result in notified bodies and/or manufacturers selecting the least stringent of the three options (assessment of the technical documentation only), which may not be the most adequate option for sufficiently ensuring the product's conformity to the essential requirements of the GAD. There is a possibility that products are placed on the market that do not meet the required quality or safety standards, thus potentially leading to an increase in the number of product failures and detrimentally impacting consumer health and safety.

However, it should be noted that no specific evidence has been obtained to suggest that allowing the choice of conformity assessment procedure would result in a reduction in the quality of this process or lead to an increase in the number of incidents regarding consumer safety in the EU. A small number of stakeholders have suggested that full examination of the product and documentation is not necessary in all situations and may therefore reduce costs for manufacturers (as it is assumed that the cost of assessing technical documentation only is less than the cost of examining both the product and documentation) whilst maintaining an adequate level of safety.

Potential Cost Savings (Benefits)

This part of the assessment attempts to estimate the likely scale of costs for manufacturers that is attributable to undertaking product conformity assessment, both in the current situation (whereby the product and documentation is examined) and in a situation in which manufacturers are able to choose between the three type examination options detailed above. An estimate can then be made regarding the scale of cost savings (benefits) that EU manufacturers may experience should the safety philosophy of the GAD change as a result of alignment with the NLF.

As before, it has been assumed that manufacturers undertake some form of internal product verification procedure in order to check the appliance meets the relevant criteria before testing is undertaken by a third party notified body. Table 8.6 provides estimates of the (additional) conformity assessment costs undertaken by a notified body based on the three type examination options.

Table 8.6: Estimate of the Cost of Product Conformity Assessment Undertaken by a Third Party Notified Body Selecting Different Type Examination Options				
Type Examination Option	**Stringency**	**Cost per Product Line (€)**		
		Low Estimate	**Middle Estimate**	**High Estimate**
Product & Documents	Most Stringent	2,000	5,000	10,000
Critical Parts & Documents		1,500	3,000	7,000
Documents	Least Stringent	500	1,000	1,500
Note: *It should be noted that the figures presented above represent the additional costs like to be incurred when undertaking product conformity assessment and does not include the costs of internal verification by the manufacturer (as these are assumed to be the same regardless of which type examination option is selected).*				

These figures represent a cost range of undertaking the relevant assessment and preparing the relevant declaration of conformity documentation, the complexity (and hence preparation time) of which will heavily depend on the product in question, as well as the notified body selected.

It is therefore assumed that undertaking EC-type examination by assessing the relevant documentation only (considered to be the least stringent option) is likely to be the least costly of the three options, whereas assessment of both the product and documentation is considered to be the most stringent and therefore most costly option. The potential cost savings of selecting the least stringent option over the most stringent option is estimated to range between €1,500 and €8,500 per product, depending on the complexity of the product and the notified body selected. These cost savings are considered to result from the reduced compliance assessment requirements, and therefore time spent, undertaking documentation checks compared to assessing both the appliance and documentation.

The figures presented in Tables 8.2 (estimates of numbers of new product lines) and 8.6 can be combined to provide estimates of the costs of undertaking conformity assessment activities. In order to undertake this process, two scenarios have been developed:

1. The first estimates the costs of the current situation, whereby the conformity to type of all new product lines is established by examining both the product and associated documentation; and
2. The second scenario assumes that in order to establish products conformity to type 60% of all new product lines are assessed by examining both the product and documentation (most stringent option), 10% by examining the critical parts of an appliance and associated documentation (medium level of stringency) and 30% by examining the technical documentation and associated evidence.

Table 8.7 combines the estimates of the number new product lines produced annually in the EU with the costs of undertaking conformity assessment by under the above scenarios

Table 8.7: Estimate of the Total EU Cost of Selecting Different EC-Type Examination Method

Scenario	Type Examination Option	Total Annual Cost (€)		
		Low Estimate	Middle Estimate	High Estimate
1 (Current Situation)	Product & Documents	12,000,000	75,000,000	350,000,000
2	Product & Documents (60%) Critical Parts & Documents (10%) Documents (30%)	9,000,000	54,000,000	250,000,000
Comparison				
Moving from 1 to 2	Cost Saving	3,000,000	21,000,000	100,000,000

Note:
Scenario 1 estimates the additional cost of undertaking product conformity assessment activities by examining both the appliance and technical documentation.
Scenario 2 estimates the additional cost of undertaking product conformity assessment activities assuming 70% of products have both the appliance and documentation examined, 10% of products have critical parts and documentation examined and 30% of products have documentation only assessed.
It should be noted that the figures above are presented to two significant figures.

It is therefore assumed that in the current situation, whereby all new product lines require conformity assessment via examination of the product and associated documentation (Scenario 1), the total annual EU cost for manufacturers (not including the cost of internal product verification processes) is estimated to range between €12m and €350m. Under Scenario 2 it is assumed that the NLF requirement (allowing notified bodies and manufacturers the choice of conformity assessment examination method) is brought forward into the GAD resulting in 10% of all new product lines undergoing conformity assessment by analysing critical parts of the appliance and documentation and 30% of all new products assessed using documentation and other evidence. These are both considered less stringent, less time consuming and less costly options compared to full examination of both the product and documentation. This is considered a realistic scenario as the majority of new products are likely to require full assessment (of both the product and documentation), whereas in a proportion of cases (in which the product's type has not significantly changed) assessment of the critical parts of the appliance and documentation or just the documentation may be a suitable alternative. Therefore, it is estimated that the annual additional cost of conformity assessment for all new EU product lines using a combination of the three type examination methods is between €9m and €250m.

The annual cost saving for all EU manufacturers of using the less stringent type examination methods compared to the current approach (whereby the whole product and documentation is assessed) is estimated to range between €3m and €100m, with a middle estimate of €21m. It should be noted that these figures represent the potential

scale of savings that could be realised through adoption of less stringent, less onerous options rather than definitive values.

Potential Impacts on Safety (Costs)

As discussed in Section 7.3.3, there is some disquiet about the implications of changing the safety philosophy of the GAD due to the possibility that safety of products reaching the EU market might be compromised.

As before, it is possible to consider the trade-offs between cost savings and reduced levels of safety using a value of a human life as illustrated in Table 8.8.

Table 8.8: Estimated Additional Annual Number of Deaths that Could Occur for the Savings in Costs Experienced as a Result of Using Different EC-Type Examination Method

Scenario	Process	Estimate	Annual Cost Savings (€)	Equivalent Number of Fatalities (@€2m/life)
2	Product & Documents (60%) Critical Parts & Documents (10%) Documents (30%)	Low	3,000,000	2
		Middle	21,000,000	11
		High	100,000,000	50

Table 8.8 indicates that, under the middle estimate, the savings of €21m per annum would provide net benefits if the annual numbers of gas-related deaths increased by less than 11 (representing less than 6% of total gas-related deaths). In other words, if it was felt that using different EC-type examination methods would only make a marginal difference to the numbers of fatalities then the benefits (cost savings) would outweigh the costs (slight increase in numbers of fatalities).

It is important to note that there is no evidence to suggest that the use of the alternative type examination methods would lead to such increases in deaths or injuries resulting from gas appliance failures.

8.5.4 Summary

As demonstrated above, manufacturers could experience potential cost savings through the adoption and use of alternative EC-type examination options compared to the current situation in which both the appliance and relevant documentation need to be examined before a declaration of conformity can be issued. This, of course, assumes that the notified bodies (or, indeed, accredited in-house bodies if adopted) would grant the requisite approvals whichever approach was adopted – which may well not be the case.

It is estimated that under Scenario 2 (undertaking product conformity assessment activities assuming 70% of products have both the appliance and documentation examined, 10% of products have critical parts and documentation examined and 30% of products have documentation only assessed) annual EU savings for manufacturers

of between €3m and €100m compared to the current situation could potentially be experienced.

However, there is the potential that this could result in an increase in the number of unsafe products entering the market. Should this not be the case, the majority of respondents to the public consultation suggest that the current procedure has a proven track record for effectively assessing product conformity to the essential requirements of the GAD and would not be improved by the addition of two further examination options.

8.6 Introduction of More Demanding Market Surveillance Requirements

8.6.1 Possible Changes

The importance of market surveillance is widely acknowledged, with measures to strengthen this process likely to further strengthen the safety regime of the GAD and functioning of the internal market. However, only minimal changes such as training and development for staff to ensure they can competently carry out the current functions, such as use of RAPEX and ICSMS databases have been identified. Any further changes would have a negative impact, as Regulation 765/2008 already outlines the requirements for market surveillance.

8.6.2 Potential Issue being Addressed

Market surveillance authorities document incompliant products using either RAPEX or the ICSMS. Given that the ICSMS is designed as a network database that allows participating market surveillance authorities to communicate with one another, thereby promoting a uniform quality standard, authorities are encouraged to use this database over RAPEX. However, participation is a problem which is apparent for both databases, as not all Member States appear to be reporting problems on the RAPEX database and only 12 market surveillance authorities[146] are currently using the ICSMS database. However, as noted in a European Parliament report[147] there are some practical problems hindering full EU agreement such as the interface between the ICSMS and national or sectoral databases and a yearly subscription fee.

8.6.3 Impacts of Adoption

The cost of a market surveillance authority continually updating and keeping abreast of faulty products entering both their own State and that of the EU-27 is minimal.

[146] Austria, Belgium, Cyprus, Estonia, Germany, Luxembourg, Malta, Netherlands, Slovenia, Sweden, Switzerland, and the UK.

[147] Directorate-General for Internal Policies (2010): *Market Surveillance in the Member States*, article downloaded from **European Parliament** Internet site http://www.europarl.europa.eu/document/activities/cont/201108/20110825ATT25294/20110825ATT25294EN.pdf.

Table 8.9 below provides an indicative figure of the costs a Member State could expect to pay for fulfilling the requisite market surveillance obligations.

Table 8.9: Annual Cost of Reporting to ICSMS Database				
No. of Authorities	**Annual Cost of Updating ICSMS (€)**		**Total Annual EU Cost (€)**	
	Low Estimate	**High Estimate**	**Low Estimate**	**High Estimate**
27	5,000	10,000	135,000	270,000

Although, requiring market surveillance authorities to use the ICSMS database will result in costs it is also considered to result in certain benefits. Inclusion of this requirement within the GAD (or associated guidance documents) would improve communication between market surveillance experts, thus facilitating discussions regarding problems experienced with particular gas products (i.e. non-conformities, safety issues etc.) in different Member States. This is likely to result in a more efficient market surveillance process by increasing the speed at which non-compliant products are identified and removed from the market. It is also considered to assist market surveillance authorities in undertaking a more targeted approach (and hence more efficient use of resources) by focussing on those product types in which specific issues have been experienced. Not only should the cost effectiveness of the market surveillance approach be improved, this is also considered to enhance consumer health and safety as potentially fewer non-conforming products are available on the EU market as well as reducing the period in which these products are available to consumers.

Considering the estimated costs above it is possible to calculate the potential level of benefits required in order to justify this outlay using a value of a human life. According to ExternE (2004)[148] the value of a human life is €2 million. The costs associated with a human being receiving a serious injury from a gas related incident is much more difficult to establish as no specific values have been identified. As a result Department for Transport road accident data relating to the cost of a serious injury (€26,000)[149] has been used as a proxy for determining the scale of costs that may be associated with gas related incidents. In any event, it is clear that the value of a life far outweighs that of an injury.

An example of how the value of a life may be compared with costs is presented in Table 8.10.

148 As referenced in the European Commission's Impact Assessment Guidelines.

149 DfT (2011). The Accidents Sub-Objective. TAG Unit 3.4.1. Department for Transport, UK, April 2011. Available from http://www.dft.gov.uk/webtag/documents/expert/pdf/unit3.4.1.pdf

Table 8.10: Estimated Number of Deaths that Would Need to be Prevented in Order for the Costs to be Outweighed by the Benefits as a Result of Introducing More Demanding Market Surveillance Requirements		
Estimate	**Annual Cost (€)**	**Number of Fatalities Prevented to Outweigh Costs (@€2m/life)**
Low	135,000	0.06
High	270,000	0.13

As shown in Table 8.10, even under the high estimate option the potential benefits would outweigh the associated costs if over a period of 10 years (costs discounted by 4% annually across this period resulting in a PV cost of €2.1 million) one death is prevented. In other words, if the introduction of a requirement for market surveillance authorities to use the ICSMS database resulted in the prevention of one gas appliance related fatality per 10 year period, the benefits would outweigh the costs of this exercise. This suggests that a small reduction in the number of fatalities would outweigh the estimated costs, thus resulting in overall net benefits.

8.6.4 Summary

Extensive research and consultation has indicated that there are perhaps some small changes that could be introduced to the GAD to assist with market surveillance of gas appliances. One possible change is the inclusion of training and development requirements for staff in market surveillance authorities to ensure that they can competently undertake current functions, such as the use of RAPEX and ICSMS databases. Reporting problems have been identified in both of these databases, in particular ICSMS. Increasing the use of the ICSMS database will allow market surveillance authorities to communicate with one another, thus facilitating discussion of problems experienced regarding specific products. This process is likely to improve the efficiency of the market surveillance process by assisting authorities in undertaking a more targeted approach as resources can be focussed on those products that have experienced specific issues. Not only would this lead to a more cost effective approach, but may also enhance the functioning of the internal market and reduce the number of non-conforming products on the market.

The annual EU cost to market surveillance authorities of updating the ICSMS database is estimated to range between €135,000 and €270,000, with the benefits gained from improved cooperation and communication considered to outweigh these negligible costs. Using the value of a human life (€2 million) it has been estimated that the above costs would be outweighed by the benefits if one death was prevented every ten years. It should be noted that any further changes are considered to have a negative impact, as Regulation 765/2008 already outlines the requirements for market surveillance.

8.7 Obligations for Importers and Distributors

8.7.1 Possible changes

There are currently no specific obligations on enterprises that are importing or distributing gas appliances into the EU beyond the general requirements of GAD, such as Article 2:

> *Member States shall take all necessary steps to ensure that appliances may be placed on the market and put into service only if, when normally used, they do not compromise the safety of persons, domestic animals and property.*

In addition, the General Product Safety Directive (2001/95/EC) imposes general obligations applicable to consumer products and the Blue Guide[150] provides general guidance which is perceived as best practice recommendations.

In aligning the GAD with the NLF, the importer, distributor and economic operator will be defined and their respective obligations further clarified. Briefly, it has been proposed that:

- importers are to ensure appropriate conformity assessment has been carried out;
- importer/distributor is to inform the manufacturer and market surveillance authorities if an appliance or fitting poses a risk;
- importers are to include their details on the appliance, fitting or if this is not possible, the packaging;
- where appropriate, importers shall conduct sample testing;
- if importers/distributors believe they have placed a faulty appliance or fitting on the market, they must take immediate measures to bring it into conformity and where it poses a risk, inform competent national authorities;
- importers/distributors are to provide all necessary information and documentation to demonstrate conformity of an appliance or fitting; and
- economic operators must be able to identify to the market surveillance authority any economic operator that has supplied them with an appliance or fitting for a 10 year period after being supplied with the product.

The requirement for importers to include their details and for economic operators to be able to identify who supplied a product will improve product traceability, allowing market surveillance authorities to more efficiently respond to non-complaint GAD products that enter the market. Sample testing and obligations to ensure the appropriate conformity assessment has been carried out should reduce the number of non-compliant GAD products that enter the market and potentially the number of associated deaths and injuries. Equally, the obligation for importers and distributors to take corrective action clarifies the roles and measures that must be taken by each respective actor whilst also furthering the aim of reducing the number of non-compliant GAD products on the market.

150 EC (2000): **Guide to the Implementation of Directives Based on the New Approach and Global Approach**, Luxembourg. http://europa.eu.int/comm/enterprise/newapproach/newapproach.htm

8.7.2 Potential Issue being Addressed

As discussed in Section 5.2, France and Denmark both identified appliances imported from outside of the EU as a potential issue, whilst an examination of RAPEX found 63% of notifications from 2005-2012 concerned imported products. Market surveillance authorities also often have difficulties tracing economic operators that supply non-compliant products.

8.7.3 Impacts of adoption

As discussed in Section 2.10, the production value of products within the scope of the GAD reached a value of €12 billion in 2007. However, this did not represent the end price value of the appliances which, if installation costs are excluded, equated to around €23 billion. However, the European manufacturers overall global production of GAD products is in decline, with its contribution to global production dropping from 54% in 1999 to 36% in 2007. This decline is explained by the emergence and increase in global production in China and Turkey, many under the auspices of European companies.

Table 8.11 shows the market share of imports and exports per country and for the EU-27. It is noteworthy that China and Turkey together exported 68.5% of the global exports of products traded within the scope of the GAD. This large figure can be attributed to the fact that many European companies have established production facilities in these countries or entered into joint ventures with Turkish and Chinese companies. China has focused on household appliances whereas Turkey has a greater variety in trade and has increased exports of space heaters, hot water and air conditioning products. China is also the source for many of the bulk electronic equipment, parts and fittings that are necessary for gas appliances. However, the value of imports from China and Turkey are relatively low – in other words, much of the value associated with EU-27 exports and imports would appear to be associated with intra-EU trade.

Table 8.11: Share of Global Gas Appliance Trade*

Countries	Share of Global Exports			Share of Global Imports		
	1999	**2003**	**2007**	**1999**	**2003**	**2007**
Brazil	0.1%	0.2%	0.1%	2.2%	0.3%	0.5%
China	29.2%	37.5%	47.9%	1.9%	5.5%	2.7%
India	7.0%	5.8%	3.8%	0.2%	0.1%	0.3%
Japan	0.5%	0.5%	0.6%	0.5%	1.2%	0.9%
Norway	1.2%	1.5%	0.6%	1.6%	2.8%	3.0%
Russia	0.2%	0.1%	0.3%	3.3%	8.2%	22.3%
Switzerland	7.6%	7.1%	6.3%	9.4%	8.6%	5.8%
Turkey	11.1%	26.6%	20.6%	10.7%	11.7%	11.5%
USA	5.6%	4.7%	6.2%	7.7%	9.3%	7.4%
EU-27	**37.7%**	**16.0%**	**13.6%**	**62.6%**	**52.3%**	**45.6%**

** Source: ECORYS (2009)*

As before, it is estimated that there are around 30,000 enterprises across the EU-27. These are mainly small and medium enterprises (less than 250 employees) as opposed to large enterprises (more than 250 employees). Germany has the biggest share of large enterprises, with over 100, whilst Italy has a higher number of smaller enterprises, these numbering around 9,000.

From this data, a reasonable assessment can be made as to the number of enterprises manufacturing new product lines outside of the GAD that will be imported into the EU-27 and subject to the proposed importer obligations under the revised GAD. This has taken into consideration the number of manufacturers who will import gas appliance parts as opposed to complete final end products that fall within the scope of the GAD. Using a similar approach as in Section 8.2.3, it has been estimated that around 1,400 new and complete product lines within the scope of the GAD will be imported into the EU-27 each year. This is equivalent to one new product line per importer (and distributor) per year.

The estimated annual costs incurred by importers and distributors of meeting the proposed obligations under the GAD if 1,400 new gas appliance products are imported in a year are outlined in Tables 8.12 and 8.13. It has been assumed that the administrative duties (detailed under Section 7.3) such as documenting, storing and making available documentation upon a reasoned request will require three working days per product line. However, the cost of sample testing per product line is highly variable for the simple reason that the cost of testing will significantly vary depending upon the complexity of the gas appliance. For this reason, low to high average sample test costs per product line have been provided.

Table 8.12: The Cost of Compliance for Importers/Distributors under the Revised GAD

Actor		New Product Lines	Average Sample Test Cost – Per Product Line (€)			Annual Administrative Obligations (€) Per New Product Line
			Low Estimate	Middle Estimate	High Estimate	
Importer	Trader	1,000	2,000	5,000	10,000	1,000
	Retailer	400	2,000	5,000	10,000	
Distributor		1,400	N/A			300

Table 8.13: Total Cost of Compliance for Importers/Distributors under the Revised GAD

Actor		Total Cost of Directive (€)		
		Low Estimate	Middle Estimate	High Estimate
Importer	Trader	3,000,000	6,000,000	11,000,000
	Retailer	1,200,000	2,400,000	4,400,000
Distributor		420,000		
Total		**4,600,000**	**8,800,000**	**15,800,000**

Based on Table 8.13, the compliance costs will be in the range of €4.6m to €15.8m with a middle estimate of nearly €9m.

As indicated above, the introduction of obligations for importers and distributors into the GAD is likely to have potentially significant costs. However, it is important to consider the potential benefits attributed to these changes. Requiring importers and distributors to ensure appropriate conformity assessment has been undertaken as well as conducting their own product testing may lead to a reduction in the number of non-conforming products entering the EU market, hence, reducing the associated number of deaths and injuries.

Considering the estimated costs above it is possible to calculate the potential level of benefits required in order to justify this outlay using a value of a human life. According to ExternE (2004)[151] the value of a human life is €2 million. The costs associated with a human being receiving a serious injury from a gas related incident is much more difficult to establish as no specific values have been identified. As a result Department for Transport road accident data relating to the cost of a serious injury (€26,000)[152] has been used as a proxy for determining the scale of costs that may be associated with gas related incidents. In any event, it is clear that the value of a life far outweighs that of an injury.

An example of how the value of a life may be compared with costs is presented in Table 8.14.

Table 8.14: Estimated Number of Deaths that Would Need to be Prevented in Order for the Costs to be Outweighed by the Benefits as a Result of Introducing Obligations for Importers and Distributors

Estimate	Annual Cost (€)	Number of Fatalities Prevented to Outweigh Costs (@€2m/life)
Low	4,600,000	3
Middle	8,800,000	5
High	15,800,000	8

Table 8.14 indicates that, under the middle estimate, the annual costs of €9 million would be outweighed by the benefits associated with a reduction of 5 fatalities per annum. In other words, if the introduction of obligations for importers and distributors lead to a reduction in the number of fatalities associated with non-conforming gas appliances by 5 (under the middle cost estimate) then the costs will be outweighed by the benefits. This suggests that a small reduction in the number of fatalities would outweigh the estimated costs, thus resulting in overall net benefits.

However, it is important to note that the potential costs for an individual organisation will vary depending on its current practice. Therefore, these costs may prove significant, particularly for low-value products, and may result in small non-EU importers and distributors exiting the EU market.

151 As referenced in the European Commission's Impact Assessment Guidelines.

152 DfT (2011). The Accidents Sub-Objective. TAG Unit 3.4.1. Department for Transport, UK, April 2011. Available from http://www.dft.gov.uk/webtag/documents/expert/pdf/unit3.4.1.pdf

8.7.4 Summary

As indicated above, aligning the GAD with the NLF will result in the introduction of obligations for importers and distributors, one of the more significant of which is the requirement for importers to include their details on the appliance and for economic operators to be able to identify who supplied a product. This should improve product traceability, thus allowing market surveillance to be undertaken more efficiently. Another significant addition is the requirement for importers to undertake sample testing as well as ensuring that conformity assessment has been carried out, which should assist with the reduction of non-conforming products entering the EU market, thus potentially leading to a reduction in associated deaths and injuries.

However, it is important to note that the requirement for importers to undertake sample testing as well as the administrative burden associated with keeping relevant documentation will result in potentially significant costs. Based on the assumptions presented in section 8.7.3 it is estimated that the total compliance costs will be in the range of €4.6m to €15.8m with a middle estimate of nearly €9m. The potential costs for each organisation will be dependent on current practices, however, these could be significant, particularly for low-value products, and may lead to the exit of certain importers and distributors from the EU market. However, based on the value of a human life (of €2 million) it is estimated that a small reduction in the number of annual deaths (as a result of introducing obligations for importers and distributors) would outweigh the costs, thus leading to overall net benefits.

8.8 Modifying Essential Requirement 1.2.1

8.8.1 Possible Changes

As discussed in Section 7.4.3[153], ER 1.2.1 could be modified to include a requirement to specify (in the technical instructions): ***the method of assessing efficient and safe combustion at the time of commissioning and after servicing or maintenance.***

Such a measure would be intended to assist installers (and service engineers) to test appliances to ensure complete and safe combustion, thus reducing the chance of CO formation and associated deaths and injuries.

8.8.2 Potential Issue being Addressed

As discussed in Section 3.5, about 200 people die accidently each year from gas-related incidents, most (perhaps 75%) of which are associated with CO poisoning. In deriving this figure, it is acknowledged that there are associated uncertainties not only with the figure itself but also, more importantly, with the causes as few detailed data are collected by national authorities to inform the discussion on the precise reasons

[153] As noted in Section 7.4.3, further discussion of other suggested revisions to the Essential Requirements is presented in Annex 2.

for such deaths. Such information is important to ensure that corrective measures are focused on the most significant areas. Nevertheless, as discussed in Section 3, it does appear that most gas-related incidents are associated with inadequate installation, maintenance and operation rather than with equipment failures. It is important to emphasise that issues associated with installation, maintenance and operation of a gas appliance fall under the competence of the Member States.

With this in mind, the scope for direct action under GAD to reduce the numbers of CO poisonings is somewhat limited.

8.8.3 Impact of Adoption

Each year, 30 million gas appliances are sold within the EU-27 (see Section 2.10). Many of these (such as mains gas powered boilers and ovens) will need to be installed professionally by suitably qualified personnel under differing national requirements. Many others will be installed and used without the aid of professional installers – with particular regard to LPG fuelled BBQs and space heaters.

The direct cost of the provision of additional instructions for each new product line (6,000 to 35,000 manufactured per year plus 1,400 imported) is estimated at €100 per product line. This gives estimated costs of up to a few million euros as shown in Table 8.15. As before, taking a value of a life as €2m, then only one or two lives need to be saved in order for the costs of the measure to be outweighed by the benefits.

Table 8.15: The Cost of Instructions for CO Testing (under ER 1.2.1)

Parameter	Low Estimate	Middle Estimate	High Estimate	Reference
New Product Lines/year	7,400	16,400	36,400	A
Cost of Additional Instructions/Product Line	€100			B
Cost of Additional Instructions/year	**€740,000**	**€1,640,000**	**€3,640,000**	**C = A x B**
Number of Fatalities Prevented to Outweigh Costs	**0.4**	**0.8**	**1.8**	**D = C / €2m**

Clearly, the associated costs of undertaking testing during installation and subsequent servicing would depend on whether the requirements were implemented by Member States and, if so, whether they were followed in practice. There is, of course, also the possibility that service companies would adopt such measures as a voluntary action as a means of demonstrating that they were following 'current best practice'. However, given the very large numbers of gas appliances, the costs of additional monitoring could be substantial as illustrated in Table 8.16 using the following assumptions:

- additional testing (to confirm low CO concentrations, etc.) during installation (for, say, 20 million appliances per year) at €15 per appliance; and

- additional testing during servicing (for, say, 300 million appliances every 2 to 6 years) at €20 per appliance.

Such assumptions may be unduly pessimistic as it could be argued that these costs may be offset by some associated savings. For example, if the CO measurement for a particular appliance was found to show that the combustion characteristics were ideal, then this could eliminate the need to dismantle the appliance for further physical inspection thus saving the engineer's time and, hence, cost.

Table 8.16: The Cost of Additional CO Testing (if required by Member States)

Parameter	Low Estimate	Middle Estimate	High Estimate	Reference
Appliances installed/year	20 million			E
Cost per installation	€15			F
Installation Costs/year	**€300 million**			**G = E x F**
Servicing Period	6 years	4 years	2 years	H
Appliances serviced/year	50 million	75 million	150 million	I = 300/H
Cost per servicing	€20			J
Servicing Costs/year	**€1,000 million**	**€1,500 million**	**€3,000 million**	**K = I x J**
Total Costs (per year)	**€1.3 bn**	**€1.8 bn**	**€3.3 bn**	

As indicated in Table 8.16, the total annual costs associated with undertaking additional CO testing (should this become a widespread mandatory requirement) are significant, with estimates ranging from €1.3 bn to €3.3 bn with a middle estimate of €1.8 bn. Despite these significant costs, it is important to assess the potential benefits that could be attributable to such measures. Requiring installers and service engineers to undertake appliance testing to ensure complete and safe combustion is considered to reduce the likelihood of CO formation, thus reducing the number of CO poisonings and associated deaths and injuries.

Using the same approach as before, the annual costs of €1.8 billion (the middle estimate) would be outweighed by the benefits associated with a reduction of 900 fatalities per annum. In other words, if essential requirement 1.2.1 was modified and led to a reduction in the number of fatalities associated with CO poisoning by 900 then the costs will be outweighed by the benefits. However, considering there are estimated to be approximately 200 accidental deaths relating to gas appliances each year, this level of benefits cannot be achieved.

It is of note that in the UK, where CO measurements are already mandatory for some appliances, a recent report[154] advocates a broader approach to tackling the issue of

[154] All Party Parliamentary Gas Safety Group (2011): **Preventing Carbon Monoxide Poisoning**, available from: http://www.policyconnect.org.uk/appgsg/node/494

carbon monoxide poisoning including a greater usage of general CO alarms in the home (which tend to cost around €25 with at least a five year lifetime[155]).

8.8.4 Summary

As previously discussed, submissions from CoGDEM suggest that there is a need for an additional point within essential requirement 1.2.1 requiring manufacturers to specify within the technical instructions (provided with an appliance) the method of assessing efficient and safe combustion at the time of commissioning and during maintenance. This addition is considered to ensure that products are effectively tested to affirm complete and safe combustion, thus reducing the risk of CO poisoning.

This appears to be a positive step to reducing the number of deaths associated with CO exposure resulting from gas appliances. As indicated in Table 8.15, the costs associated with including this information within product instructions may well be outweighed by the benefits of one or more deaths avoided per year.

Should the testing requirements be implemented by Member States either as a result of national requirements or by industry voluntary action, then it would be expected that there would be significant benefits through reduced numbers of CO poisoning fatalities. However, the costs of mandatory testing could be very significant and are likely to outweigh the benefits (in financial terms). Indeed, widespread take-up of CO alarms would be more cost-effective as they would guard against all sources of CO.

[155] It should be noted that the annual costs of purchasing CO alarms for 200 million EU-27 homes would be around €1bn (= €25 x 200m / 5 years).

9. SUMMARY

9.1 Introduction

Although it was originally envisaged that a number of policy options would be developed, analysed and compared, this was predicated on the assumption that there were a number of 'problems' to be addressed.

In the event, it proved very difficult to identify and to substantiate any significant problems associated with safety or barriers to trade despite several rounds of consultation with stakeholders and extensive research.

Nevertheless, a number of policy options were developed and reviewed in light of responses to the Public Consultation exercise and other research and analysis.

Although no 'problems' were identified, there is a general consensus that steps should be taken to align GAD with the NLF. This alignment was considered as Option 2 in the analysis and the impacts of Option 2 with respect to the baseline (Option 1) are summarised below.

9.2 Summary of Costs and Benefits of Option 2

There is general consensus that the existing safety philosophy of the GAD should be maintained. Currently, the EC type examination requires checking that an appliance, representative of the production envisaged, meets the applicable provisions of the Directive. As part of this examination, the design documentation and verification of type will also be checked. It is acknowledged that there are instances where such a comprehensive assessment is not essential and is thus imposing unnecessary costs on manufacturers. For this reason, it may be beneficial if manufacturers could select the most applicable EC type examination from, production type, combination of production type and design type or design type. However, it is possible that a manufacturer would select the most cost effective option even if a more comprehensive assessment is required. This could potentially result in an increase in non-compliant GAD products reaching the market.

If the accredited in-house bodies were permitted to undertake testing in the place of the comparatively more expensive notified bodies, manufacturers would be able to comply with the GAD at a lower economic cost. For example, if it is assumed that accredited in-house bodies are used to assess 30% of new product lines, it has been estimated that manufacturers could save (collectively) between €1.8m and €32m. However, the significant economic saving associated with accredited in-house bodies may have negative impacts. Although accredited in-house bodies are required to meet the same standards as third party notified bodies, many stakeholders consider that there is a greater possibility for manufacturers to influence the outcome of the conformity assessment process, potentially leading to an increase in the number of non-complaint GAD products entering the market. This, in turn, may increase the

number of gas incidents and associated injuries and deaths. Taking a value of a life as €2m, the middle estimate of savings of €9m per annum would provide net benefits if the annual numbers of gas-related deaths increased by less than five (representing less than 3% of total gas-related deaths). However, there is no evidence to suggest that accredited in-house bodies would increase the risk of non-compliant GAD products entering the market, particularly as these bodies must comply with the same standards as third party notified bodies. Although it appears likely that a manufacturer would make significant savings if permitted to use an accredited in-house body, the potential exists for there to be an increase in the number of non-compliant GAD products reaching the market. Furthermore, any savings made are negated by industry's strong preference for the wholly independent testing process that can only be achieved by using a third party notified body.

Should more Member States fully engage and undertake to use the ICSMS database, the goal of a network of market surveillance within the EU-27 will be realised. The system will become more integrated, more efficient and more effective. Supporting the ICSMS, the obligation to retain technical information for 10 years will improve traceability, allowing market surveillance authorities to more readily identify the manufacturer of the non-complaint GAD product. Not only will the safety regime of the GAD benefit from both of these obligations, but they can also be achieved with minimal economic cost.

Although the clarification for dealing with appliances or fittings that pose a risk at national level will also not have a significant economic cost, the impact on the safety regime of the GAD will be minimal, as the changes are essentially semantic.

Conversely, the clarification and strengthening of importer/distributor obligations entails a more significant economic cost, although the impact of this is dependent on an organisation's current practice. Whilst larger enterprises will be able to absolve these costs, many small importers/distributors who import from outside of the EU-27 may find such costs debilitating (particularly if importing low-value products) and choose to exit the EU market. However, it is important to note that a small reduction in the number of annual deaths associated with fewer non-conforming products entering the EU market (through implementation of these obligations) is estimated to outweigh the costs, resulting in net benefits.

However, such costs are overwhelmed by those associated with proposals for additional CO testing during the installation and servicing of appliances due to the very large numbers of appliances in circulation. With this in mind, it will be very difficult to provide a cost-benefit analysis to justify taking such actions.

The overall summary of the potential costs and benefits of Option 2: Alignment with the NLF are summarised in Table 9.1.

Table 9.1: Summary of the Potential Costs and Benefits of Option 2: Alignment with the NLF		
Potential Change	**Costs**	**Benefits**
Requirement to keep technical documentation & declaration of conformity	€0.4m – €0.7m per annum	Ensures a consistent EU-wide approach and reduced administrative burden for market surveillance authorities
Procedure for dealing with appliances or components presenting a risk at national level	No significant costs perceived	Clarification of the contingency measures to be undertaken if an economic operator fails to take appropriate corrective action should a non-conforming gas appliance enter the EU market
Introduction of accredited in-house bodies	1 – 16 (number of fatalities that could be lost for benefits to outweigh costs)	€1.8m – €32m per annum (in cost savings)
Altering the safety philosophy of the GAD	2 – 50 (number of fatalities that could be lost for benefits to outweigh costs)	€3m – €100m per annum (in cost savings)
Introduction of more demanding market surveillance requirements	€0.1m - €0.3m per annum	0.06 – 0.13 (number of fatalities prevented for benefits to outweigh costs)
Obligations for importers and distributors	€4.6m - €15.8m per annum	3 – 8 (number of fatalities prevented for benefits to outweigh costs)
Modifying essential requirement 1.2.1 (additional instructions)	€0.7m - €3.6m per annum	0.4 – 1.8 (number of fatalities prevented for benefits to outweigh costs)
Modifying essential requirement 1.2.1 (additional instructions + testing)	Potentially very large	Fatalities may be prevented but benefits would be unlikely to outweigh costs

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Annex 1: Summary of Aligning NLF to the current GAD (2009/142/EC)

Table A1.1: Comparison of the NLF with the Revised GAD ***(Note that, for completeness, some further amendments have been included)***		
NLF Article	**Revised GAD – How the NLF Article has been adopted**	**Potentially Significant Alteration?**
Article R1: Definitions	Article R1 replaces Article 1.2 of the current GAD. Each of the definitions have been incorporated into the revised GAD, with minor changes to definitions of: 'accreditation', 'national accreditation body', 'conformity assessment' and 'community harmonisation legislation'. Additional definitions have been included: 'appliances using gaseous fuels', 'end-user installation', 'gaseous fuel', 'combustion', 'normally used', 'making available on the market', 'placing on the market', 'putting into service', 'manufacturer', 'authorised representative', 'importer', 'distributor', 'economic operators', 'technical specification', 'harmonised standard', 'accreditation', 'national accreditation body', 'conformity assessment', 'conformity assessment body', 'recall', 'withdrawal', 'CE marking' and 'union harmonisation legislation'.	Yes (see Options 4 and 5)
Article R2: Obligations of manufacturers	Article R2 is included in the revised GAD. *Point 3* – manufacturers are required to keep technical documentation and the EC declaration of conformity for **10 years** after the appliance or [fitting] is placed on the market. *Point 6* – the term 'document' is replaced by 'instructions'.	Yes
Article R3: Authorised representatives	Article R3 is included in the revised GAD. *Point 2a* – the EC declaration of conformity and the technical documentation should be kept for **10 years** after the appliance or [fitting] was placed on the market and made available to national surveillance authorities.	Yes
Article R4: Obligations of importers	Article R4 is included in the revised GAD.	No
Article R5: Obligations of distributors	Article R5 is included in the revised GAD. Reference is made to relevant Articles/Annexes where appropriate.	No
Article R6: Cases in which obligations of manufacturers apply to importers and distributors	Article R6 is included in the revised GAD.	No
Article R7: Identification of economic operators	Article R7 is included in the revised GAD. Reference is made to 'appliances' and '[fittings]' where appropriate. Economic operators are required to identify and present the information in a) and b) on request to market surveillance authorities for **10 years**.	No
Article R8: Presumption of conformity	Article R8 is included in the revised GAD (merged with Article 5 of the current GAD). An additional point has been added based on Article 5 (Point 1(a)) of the current GAD.	No
Article 9: Formal objection to a harmonised standard	Article R9 replaces Article 6 of the current GAD. Reference is made to the relevant Annex (Annex 1).	No

Table A1.1: Comparison of the NLF with the Revised GAD ***(Note that, for completeness, some further amendments have been included)***		
NLF Article	**Revised GAD – How the NLF Article has been adopted**	**Potentially Significant Alteration?**
Article 10: EC declaration of conformity	Article R10 is included in the revised GAD. Reference is made to the relevant Annex (Annex 1).	No
Article 11: General principles of the CE marking	Article R11 is included in the revised GAD with no changes.	No
Article 12: Rules and conditions for affixing the CE marking	Article R12(1) replaces Article 10(1) of the current GAD. Article R30(5) of Regulation 765/2008 replaces Article 10(2) of the current GAD.	No
Article 13: Notification	Article R13 replaces part of Article 9(1) of the current GAD.	No
Articles R14, 15 and 16	Included in the revised GAD with no changes.	No
Article R17: Requirements relating to notified bodies	Article R17 replaces Article 9(2) and Annex V of the current GAD with no changes to the text.	No
Article R18 and R19: Presumption of conformity	Included in the revised GAD with no changes.	No
Article R20: Subsidiaries of and subcontracting by notified bodies	Article R20 is included in the revised GAD. Reference is made to the relevant Article (Article R13).	No
Article R21: Accredited in-house bodies	Article R21 is included in the revised GAD. **Note**: it was to be examined whether such bodies will be allowed in the future GAD – only module C2 is provided for in the current GAD.	Yes
Article R22: Application for notification	Article R22 is included in the revised GAD with no changes.	No
Article R23: Notification procedure	Article R23 is included in the revised GAD.	No
Article R24: Identification numbers and lists of notified bodies	Article R24 replaces part of Article 9(1) of the current GAD.	No
Article R25: Changes to notifications	Article R25 replaces Article 9(3) of the current GAD with no changes to the text.	No
Article R26: Challenge of the competence of notified bodies	Article R26 is included in the revised GAD with no changes.	No
Article R27:	Article R27 is included in the revised GAD.	No

Table A1.1: Comparison of the NLF with the Revised GAD ***(Note that, for completeness, some further amendments have been included)***		
NLF Article	**Revised GAD – How the NLF Article has been adopted**	**Potentially Significant Alteration?**
Operational obligations of notified bodies	Reference is made to the relevant Annexes (Annex I and II).	
Article R28: Information obligation on notified bodies	Article R28 is included in the revised GAD.	No
Article R29 and R30	Article R29 is included in the revised GAD with no changes.	No
Article R31: Procedure for dealing with products [appliances or [fittings]] presenting a risk at national level	Articles R31 & R32 replace Article 7 of the current GAD. *Point 7* – a time period of **two months** has been included in the appropriate part of the text.	Yes
Article R32: Community [Union] safeguard procedure	Article R32 is included in the revised GAD.	No
Article R33: Compliant products [appliances or [fittings]] which present a risk to health and safety	Article R33 is included in the revised GAD. *Point 1* – the following text has been highlighted 'a risk to the health or safety or persons or to other aspects of public interest protection'. Further consultation will ascertain whether the words used are sufficiently clear.	No
Article R34: Formal non-compliance	Article R34 replaces Article 11 of the current GAD.	No
Annex I: Essential requirements. There is no Annex I in the NLF		No
Annex II: Conformity assessment procedures		No
Module A, A1, A2	Not included in the revised GAD.	No
Module B: EC-type examination	Module B of Annex II replaces Point 1 of Annex II of the current GAD. The requirements relating to technical documentation replaces part of Annex IV of the current GAD. Wide consultation, that will include industry and notified bodies, will help to resolve any possible inconsistencies that may arise as a result of the words used under Point 2 and 4. Consultation will also help to determine the stringency of module B. . 3) .	Yes
Module C and C1: Conformity to type based on	Not included in the revised GAD.	No

Table A1.1: Comparison of the NLF with the Revised GAD ***(Note that, for completeness, some further amendments have been included)***		
NLF Article	**Revised GAD – How the NLF Article has been adopted**	**Potentially Significant Alteration?**
internal production control		
Module C2: Conformity to type based on internal production control plus supervised product checks at random intervals	Module C2 of Annex II replaces Point 2 of Annex II of the current GAD. *Point 3 (Product checks)* – inclusion of part of Point 2.3 of Annex II of the current GAD relating to onsite checks of appliances or [fittings] undertaken by notified bodies at intervals of '**one year or less**'. Also, the addition of a choice (by the manufacturer) between the accredited in-house bodies and notified bodies. Also, where a sample does not conform to the acceptable quality level, the body shall take appropriate measures, ... '**to prevent the placing on the market of the concerned appliances or [fittings]**' is added from the current GAD. *Point 4 (Conformity marking and declaration) of conformity)* - the wording in bold has been added: ' The manufacturer shall **affix the CE marking and the inscriptions provided for in Point 2 of Annex III**...'.	Yes
Module D: Conformity to type based on quality assurance of the production process	Module D of Annex II replaces Point 3 of Annex II of the current GAD. *Point 4.3* - the wording in bold has been added: 'The notified body shall carry out periodic audits of **at least once every two years** to make sure that the manufacturer maintains and applies the quality system and shall provide the manufacturer with the audit report'. This is taken from Point 3.4.3 of Annex II of the current GAD.	No
Module D1: Quality assurance of the production process	Module D1 is not included in the revised GAD.	No
Module E: Conformity to type based on product quality assurance	Module E of Annex II replaces Point 4 of Annex II of the current GAD. *Point 4.3* - the wording in bold has been added: 'The notified body shall carry out periodic audits of **at least once every two years** to make sure that the manufacturer maintains and applies the quality system and shall provide the manufacturer with an audit report'. This is taken from Point 3.4.3 of Annex II of the current GAD. *Point 7* - the wording in bold has been added: 'Each notified body shall inform the other notified bodies of quality system approvals which it has refused, suspended or withdrawn or otherwise restricted, ~~and upon request, of quality system approvals which it has issued~~ **providing the reasons for its decision**'. This is taken from Point 4.3.5 of Annex II of the current GAD.	No
Module E1: Quality assurance of final product inspection and testing	Module E1 is not included in the revised GAD.	No
Module F: Conformity to type based on product verification	Module F of Annex II replaces Point 5 of Annex II of the current GAD. *Point 5.2* - An additional point from the current GAD is included in the revised GAD. Point 5.5.2 of Annex II of the current GAD (relating to statistical control) is included after Point 5.5.2 of the revised GAD (Point 5.2 of the NLF).	No
Module F1: Conformity based	Module F1 is not included in the revised GAD.	No

Table A1.1: Comparison of the NLF with the Revised GAD ***(Note that, for completeness, some further amendments have been included)***		
NLF Article	**Revised GAD – How the NLF Article has been adopted**	**Potentially Significant Alteration?**
on product verification		
Module G: Conformity based on unit verification	Module G of Annex II replaces Point 6 of Annex II of the current GAD. *Point 2* - The requirements in Point 2 (relating to technical documentation) replace part of Annex IV of the current GAD. **However the additional information required by Annex IV is kept and incorporated in this point, as follows**: GAD Annex IV (part): 'manuals for installation and use' (Note: could use "the instructions" instead of "manuals"). 1) 'Where appropriate, the design documentation must contain the following elements: - attestations relating to equipment incorporated in the appliance or the [fitting]; - attestations and certificates relating to the methods of manufacture and/or inspection and/or monitoring of the appliance or [fitting]; - any other document making it possible for the notified body to improve its assessment. *Point 4 (verification)* – After the first paragraph the following text has been inserted (taken from the current GAD): 'If deemed necessary by the notified body, the examinations and tests may be carried out after installation of the appliance **or the [fitting]**'.	No
Module H: Conformity based on full quality assurance	Module H is not included in the revised GAD.	No
Module H1: Conformity based on full quality assurance plus design examination	Module H1 is not included in the revised GAD.	No
Annex III: EC Declaration of Conformity	Annex II of the revised GAD is 'CE marking and inscriptions'.	No
Notes: *The italicised writing in the second column refers to the point/paragraph in the NLF.* *It should be noted that the Informal Working Document refers to 'components' on the basis that the scope of the GAD would be expanded to include items that are located between the gas delivery point and the appliance. This possibility is considered under Option 5 (see Section 7.6). For clarity, the term 'fittings' has been used here to reflect the current scope of the GAD.*		

Annex 2: Possible Modification of Essential Requirements (Option 3)

A2.1 Modification of Essential Requirement 1.2.1

The current essential requirement 1.2.1 presented in the GAD stipulates:

> *"The technical instructions intended for the installer must contain all the instructions for installation, adjustment and servicing required to ensure that those operations are correctly performed and that the appliance may be used safely. In particular, the instructions must specify:*
>
> - *the type of gas used;*
> - *the gas supply pressure used;*
> - *the flow of fresh air required:*
> - *for the combustion air supply;*
> - *to avoid the formation of dangerous unburned gas mixtures for appliances not fitted with a special device which avoids a dangerous accumulation of unburned gas in such spaces or rooms.*
> - *the conditions for the dispersal of combustion products;*
> - *for forced draught burners and heating bodies intended to be equipped with such burners, their characteristics, the requirements for assembly, to assist compliance with the essential requirement applicable to finished appliances and, where appropriate, the list of combinations recommended by the manufacturer".*

The question has arisen whether only the first sentence should be kept (being the general point applying to all appliances) as not all of the requirements apply to all appliances. More detailed instructions relating to the installation, adjustment and servicing of gas appliances should be provided in any case, as specific safety aspects would need to be taken into account by the installer. Furthermore, the question arises as to whether the current list of required specific instructions highlights all the aspects to be regarded by the installer. In light of this, stakeholders were asked to comment on whether they believe modification of essential requirement 1.2.1 is necessary (see Table A2.1)

Table A2.1: Would it be Necessary to Modify Essential Requirement 1.2.1?

Response	Number of Responses	% of Responses
Yes	26	29
No	56	63
No opinion	7	8
Total	**89**	**100**

As indicated in Table A2.1, the majority of respondents (56 of the 89 or 63%) do not consider modification of essential requirement 1.2.1 necessary. A number of respondents indicated that the current essential requirements of the Directive cover all safety risks and the request for technical instructions in essential requirement 1.2.1 is sufficient. Others note that the installer should be provided with all instructions for installation, adjustment and servicing required to ensure that these operations are

correctly performed, thus ensuring that the appliance is used safely. Therefore, deletion of the requirements within essential requirement 1.2.1 may result in manufacturers not providing all the necessary instructions for the appliance. This in turn could increase safety risks if appliances are not installed, adjusted or serviced correctly.

Maintenance of the detail within essential requirement 1.2.1 provides legal certainty and informs manufacturers of the information that should be included in the technical instructions, thus ensuring consistency across the EU. However, the revised version of the GAD (in the Informal Working Document – Outcome of the WG GAD Rev of 22/06/2011) removes the detail of the essential requirement and maintains the first, general sentence only. In order to simplify the text of the Directive, the detail of the requirement could be transferred to a guidance document. However, doing so would mean that relevant parties would need to refer to both the Directive and the guidance document, which will increase the administrative burden (in terms of time and costs). However, considering that the majority of stakeholders did not consider modification of essential requirement 1.2.1 to be a necessary exercise, inclusion of the detail within a guidance document may be a possible alternative rather than complete removal.

Another respondent suggested that the instructions under essential requirement 1.2.1 are necessary for ensuring safe operation of the appliance and should, therefore, remain in the legal text. However, they also note that additional requirements should be added *"regarding instructions for regular inspections and for records of details related to any corrective actions taken during the maintenance phase"*. In addition to these provisions the respondent indicates that there is a need to incorporate requirements in the GAD for the competence and training of professionals involved in the planning, design, installation, commissioning, use and maintenance of appliances. The revised GAD should take account of the situation where the manufacturer's instructions might not cover all safety requirements of other attached components. *"It is not enough for the appliance to be safe when placed on the market. It must remain safe after installation and all along its life-cycle, including during the dismantling/replacement phase"*. The inclusion of these provisions within the GAD would ensure the safe use of gas appliances and reduce consumer risk.

In relation to the above comment, another respondent suggested that a gas appliance may become unsafe or operate inefficiently due to poor, faulty or negligent installation and maintenance. Currently, GAD does not address installation, operation or maintenance of gas appliances, but this respondent suggests that these should be taken into account within the scope of the GAD to ensure product safety throughout its life.

Although one respondent considered modification of essential requirement 1.2.1 to be unnecessary, they did raise a potential issue regarding information that should be provided for installers. According to this stakeholder, supplying suitable information to installers is not always a simple process because of the differences in installation practices between Member States. Manufacturers therefore need better access to the installation practices relating to gas appliances in different Member States, which *"would enhance the safety of installed products as the manufacturers could better*

adapt the installation manual of their products". One method of achieving this is to establish an institution (for example, the 'Standing Committee on Construction' in relation to the Construction Products Directive/Construction Products Regulation) to consider and assist with any question posed by the implementation and practical application of the revised GAD.

Another respondent made a similar point above in that improved access to national regulations on the installation of appliances for Member States is required. It was suggested that the creation of a special institution providing the above information would facilitate the exchange of information on different national regulations. The respondent indicated that *"this institution could take the form of Product Contact Points pursuant to Article 9 of Regulation 764/2008/EC"* (a similar approach has been introduced into the Construction Products Regulation. Facilitating the exchange of information regarding installation regulations may improve safety as manufacturers are better informed of each Member States installation regulations, thus enabling them to provide specific, suitable instructions for installers within those countries. However, this may lead to an increase in costs if instructions need to be modified for each individual Member State.

One respondent noted that the general provision given in the first sentence of essential requirement 1.2.1 is sufficient in principle. The issue that not all instructions within the essential requirement are applicable to all kinds of appliances can be solved by the following small modification of the second sentence: *"In particular,* ***where applicable****, the instructions must specify"*.

Although the majority of respondents indicated that essential requirement 1.2.1 should not be modified, approximately 29% of those responding to the public consultation believe that modification is necessary. A number of stakeholders believe that the first sentence is sufficient. One respondent also suggested the following modification to the text: *"The instructions intended for the user and installer must contain all the instructions for use, installation, adjustment and servicing required to ensure that those operations are correctly performed and that the appliance may be used safely"*. It is important to remember that there are appliances that do not need an installer (like camping, heaters, BBQ, lamps, etc.). Also, there are many users that install (simple) appliances without using an installer (legally or illegally). The respondent indicates that they would *"prefer to have all instructions available for the user especially while this avoids dangerous situations due to a lack of information. Also, since 1990 the attitude of the modern user has changed: the user wants to know more about their appliances, they want to check the installer, they want to discuss technical issues with the installer, they want to take their own responsibilities"*. Therefore, providing users with this information may reduce safety risks, particularly in situations in which an installer is not needed.

It was also suggested by one respondent that in order to increase the safety of cooking appliances, the Directive should require the use of a flame safety device. They also propose removing the following part of essential requirement 1.2.1 concerning domestic cooking appliances:

- *the flow of fresh air required:*
  - *for the combustion air supply;*
  - *to avoid the formation of dangerous unburned gas mixtures for appliances not fitted with a special device which avoids a dangerous accumulation of unburned gas in such spaces or rooms.*

Furthermore, the respondent suggested deleting the following text from essential requirement 3.2.3: *"Appliances which are not fitted with such devices must be used only in areas where there is sufficient ventilation to avoid a dangerous accumulation of unburned gas. Member States may define on their territory adequate space ventilation conditions for the installation of such appliances, bearing in mind the features peculiar to them"*. Currently, this text allows Member States to introduce different safety requirements. As a result, the GAD fails to grant European consumers the same level of protection throughout the EU, which conflicts with the single market and EU consumer agenda principles. The respondent indicates that they would be in favour of harmonising this provision throughout the EU so consumers benefit from the same level of safety regardless of the Member State in which they are based.

A2.2 Modification of Other Essential Requirements

Overview

Throughout the consultation process a number of possible modifications to other essential requirements have been suggested by stakeholders. The comments made and the potential impacts of introducing the proposed changes are discussed below.

A more general comment relating to the essential requirements of the Directive indicated that in order to guarantee the safety of persons or goods in a uniform manner, it would be sensible for the GAD to stipulate the relevant minimum safety requirements for the implementation and execution of safety-relevant "first putting into use" procedures on a European label. In direct relation to this, the respondent proposes including details of undertaking a tightness test on the gas installation by measuring the drop in pressure or the leakage rate. Also, a test for safe flue gas channelling by measuring the CO and O_2 concentrations in the flue gas is important for establishing health relevant assessment criteria. An example, provided by the stakeholder, of the need for action was recently ascertained in the course of the statutory introduction of gas calorific boiler units in the UK. In this case, the result was a considerable number of deaths among end users due to carbon monoxide (CO) poisoning. The reason for this was that the installation personnel had used no measuring instruments or had used unsuitable devices to adjust or check the gas appliances. The respondent also noted that they are aware of a substantial number of accidents in other Member States resulting from leakage of CO, for example, 4,000 accidents in France per annum and 3,000 accidents in Spain per annum ***(although these figures are not reflected in the official statistics presented in the main text)***. Therefore, inclusion of appropriate test procedures for appliances when initially

placed on the market may help reduce the number of accidents relating to gas appliances within the EU.

Essential Requirement 1.2.2

Essential requirement 1.2.2 of the GAD states: *"The instructions for use and servicing intended for the user must contain all the information required for safe use, and must in particular draw the user's attention to any restrictions on use"*. One stakeholder suggested inserting a semi-colon after "to" and to include three additional requirements: 1) any restrictions on use, 2) a recommendation that an independently mounted audible carbon monoxide alarm should be fitted in the area containing the gas appliance, 3) an explanation that the alarm should not be regarded as a substitute for regular servicing by a competent person. The stakeholder also suggests providing supporting guidance sheets that reference the relevant European norms for: 1) appropriate combustion measuring devices e.g. EN 50379, 2) their use e.g. EN being prepared by Joint CLC/TC 216 & CEN/TC 109 WG, 3) relevant combustion monitoring devices for use by users e.g. EN 50291. The inclusion of a recommendation to mount a carbon monoxide alarm within the vicinity of the appliance would alert consumers of a gas leak and therefore improve safety.

Essential Requirements 3.1.7 and 3.1.8

Consultation with stakeholders has also highlighted a potential area for confusion in relation to essential requirements 3.1.7 and 3.1.8. Essential requirement 3.1.7 states that *"appliances must be so designed and constructed as to obviate hazards of electrical origin"* and essential requirement 3.1.8 states that *"Appliances must be so designed and constructed as to obviate hazards originating from electromagnetic phenomena"*. Respondents noted that industry fully agrees to the fact that hazards of electrical origin and hazards originating from electromagnetic phenomena in gas appliances have to be taken into account. However, it is unclear from the wording in the revised GAD whether these hazards have to be covered by Notified Bodies under the GAD or by declaration of the manufacturer as defined in the Low Voltage Directive or Electromagnetic Compatibility Directive. One respondent indicates that *"Additional testing by Notified Bodies would increase the already existing administrative and financial burdens"*. Specification within these essential requirements that the electrical hazards associated with gas appliances should be covered by the Low Voltage Directive and Electromagnetic Compatibility Directive would clarify the situation and prevent confusion.

Essential Requirement 3.2.3

A number of organisations responding to the European Commission's public consultation suggested modifying essential requirement 3.2.3 of the current GAD. These respondents proposed the deletion of the following text: *"appliances which are not fitted with such devices must be used only in areas where there is sufficient ventilation to avoid dangerous accumulation of unburned gas. Member states may define on their territory adequate ventilation conditions for the installation of such appliances, bearing in mind the features peculiar to them"*. The reason for this is

because, in its current form, this essential requirement is open to interpretation by Member States allowing them to introduce different safety requirements. Thus, a uniform level of protection may not be achieved across the EU. In the Informal Working Document of the GAD Working Group (revised GAD) the points above have been removed. This should ensure a uniform safety level is achieved across the EU in relation to appliances to be used in indoor spaces.

One respondent also highlighted a potential issue with essential requirement 3.2.3 in its current form. The existing GAD requires *"Appliances intended to be used in indoor spaces and rooms must be fitted with a special device which avoids a dangerous accumulation of unburned gas in such spaces or rooms"*. However, this respondent notes that it is not possible for appliances, such as *"blow torches fitted with cartridges or current camping stoves fitted with gas cartridges"*, to be fitted with an automatic shut-off device operating at the pressure of an LPG cartridge (up to 12 bar) in the compact form of such equipment. A draft revision of the GAD produced by the GAD Revision Working Group removes the requirement that appliances intended for indoor use should be fitted with a special device and instead requires the appliance to be *"designed and constructed to prevent the release of unburned gas in all situations which could lead to a dangerous accumulation of unburned gas"*. This therefore removes the issue highlighted above whilst ensuring the appliances do not release dangerous accumulations of unburned gas.

Another respondent indicated that some aspects regarding the concordance between GAD essential requirement 3.2.3, standard EN 30-1-1:2008 (domestic cooking appliances burning gas) paragraph 2.2.12.1 and national legislation of EU Member States, for the unitary application of safety requirements of domestic cooking appliances should be clarified. In light of this, the term *"enough ventilation"* gives Member States the possibility of choosing the technical conditions for the installation of domestic cooking appliances that are not fitted with a flame safety device. This could lead to problems for some manufacturers when attempting to place products on other Member State markets as "enough ventilation" may be defined differently between Member States, thus potentially impacting the design of the appliance. Also, the respondent notes that *"dangerous gases issued in such spaces or in the chamber"* is not clearly defined, nor is a limit level stipulated. This may lead to different interpretations, which could result in a variation in the approach taken and hence safety level across the EU. For domestic cooking appliances which refer to standard EN 30-1-1:2008, the presumption of conformity to GAD essential requirement 3.2.3 when using an alternative to a flame safety device is difficult to prove in practice and can be an expensive process. Consequently, the respondent *"firmly declares from a technical point of view, for the solution of exclusive use of a flame safety device"*.

Essential Requirement 3.4.4

Other respondents to the Commission's public consultation indicate that manufacturers have expressed the need for better information on installation practices in the different Member States. For example, essential requirement 3.4.4 in the current GAD states that: *"Appliances must be so designed and constructed that, when used normally, they do not cause a concentration of substances harmful to*

health in indoor spaces or rooms, such as they would be likely to present a danger to the health of persons exposed". Theoretically there are potentially large variations of possible substances in the combustion products of gas appliances. CO and NO_x (where appropriate) have been used for a number of years as appropriate indicators for evaluation of the combustion process. Therefore, the question is whether the measurement of CO and NO_x is regarded as appropriate to fulfil this requirement. If not, it is necessary to specify the substances within the combustion products in order to avoid different interpretation in test labs assessing gas appliances across Europe. Clarifying suitable test procedures in relation to combustion products will ensure that uniform testing is undertaken across the EU, thus ensuring a suitable, uniform safety level is achieved.

Essential Requirement 3.6.4

In the revised version of the GAD (Informal Working Document – Outcome of the WG GAD Rev of 22/06/2011) an additional essential requirement – 3.6.4 – has been included. This states: *"The surface temperatures of external parts of appliances intended for non-domestic use, with the exception of surfaces or parts which are associated with the transmission of heat, must not under operating conditions present a danger to the persons exposed, taking into account their competencies"*. This refers to non-domestic use; however, appliances used in industrial processes are excluded from the scope of the GAD. Therefore, there is a (known or unknown) collusion with one of the general requirements of the Machinery Directive (Annex I, paragraph 1.5.5). Also, the state of the art regarding the "maximum allowed surface temperature" is defined within a type B standard (ISO 13732-1-2006) of the Machinery Directive. Therefore, inclusion of this essential requirement may cause confusion regarding which Directive applies to non-domestic products and in the case of the GAD, may be considered to contradict an earlier statement which excludes *"appliances and* [fittings] *specifically designed for use in industrial processes carried out on industrial premises"*.

Annex 3:

SWOT Analysis of Potential Options

Table A3.1: SWOT Analysis of Policy Option 3 – Technical Updating of the GAD	
Strengths	**Weaknesses**
• The availability of additional information relating to gas supply conditions in Member States should ensure that manufacturers have access to all relevant information, thus allowing them to design products that adequately (safely) operate within various regions of the EU as well as enhancing the general functioning of the internal market. • The current GAD's purpose is to reduce/prevent barriers to trade and safety issues relating to gas appliances. The inclusion of additional energy efficiency requirements is not considered to be beneficial. This issue of energy efficiency is already considered in other regulations (e.g. Eco-design Directive). Therefore, inclusion of additional energy efficiency requirements within the GAD could result in double regulation (and therefore increased administrative burden). • Altering of the definition of 'appliances' may help clarify the situation and ensure manufacturers are clear regarding which products fall within the scope of the GAD. • Maintenance of the exclusion of industrial products from the scope of the GAD is important because the risks associated with these products are not limited to combustion, but many other risks. Also, products designed and constructed for a specific industrial purpose are covered by other Directives. • Requiring CE marks for fittings will harmonise the situation in relation to other Directives and thus prevent confusion for manufacturers and enhance the functioning of the internal market. For example, some fittings are covered by more than one Directive and CE marking of fittings can vary between these. The GAD does not allow CE marking for fittings whereas the Low Voltage Directive does. • The inclusion of additional exclusions within the GAD should further clarify the types of products that are inside and outside the scope of the GAD. • Inclusion of the declaration of conformity with the appliance may be beneficial for the installer as this allows them to confirm that the product complies with the requirements of the GAD. It also instils confidence in the manufacturer that the risks associated with the gas appliance have been adequately considered. This may also assist market surveillance activities as the declaration of conformity can be found with the product, should an issue arise. • Inclusion of the declaration of conformity with the appliance would ensure a harmonised, consistent approach is used as other Directives already require this. • Perhaps the addition of a requirement within the GAD indicating that the manufacturer should provide all the necessary information to allow the choice of appropriate flue, freely available on the market.	• Stakeholders suggest that the current situation, whereby gas supply condition information as defined in EN 437 is sufficient. • Adjusting the definition of 'appliances' to include other 'conventional' gas burning products is a possibility. However, this cannot be justified as no specific barriers to trade or safety issues have been identified in relation to other products not currently included within the scope of the GAD. • Removal of the exclusion of appliances with a normal water temperature exceeding 105^{o}C would mean that both the GAD and the PED would apply to gas appliances with a normal water temperature exceeding 110^{o}C, which is likely to cause confusion. Also, domestic appliances do not generally have a normal water temperature that exceeds 105^{o}C; therefore, expansion of the 105^{o}C threshold will include industrial products (although these are currently excluded from GAD). This again could lead to confusion with other Directives. • Providing the declaration of conformity with appliances has no meaning for consumers and would therefore not add any value. Also, the CE marking of appliances effectively acts as a declaration of conformity and should therefore sufficiently demonstrate that the product meets the requirements of the GAD. • Currently, certification of flues/chimneys as part of a gas appliance restricts the use of specific flues with certain appliances. This prevents the use of other equally suitable flues with the appliance, which prevents competition, restricts consumer choice and increases costs for consumers.

Table A3.1: SWOT Analysis of Policy Option 3 – Technical Updating of the GAD	
Opportunities	**Threats**
• The use of LNG within EU countries is anticipated in increase in the future. The quality of LNG greatly differs depending upon where it is sourced, extracted and processed. In order to ensure products using LNG operate efficiently and safely manufacturers should have access to LNG supply conditions, particularly as this is a developing market. • Specifying the format in which additional gas supply information is to be provided (to the EC and other Member States) by using a harmonised approach would prevent confusion/ misinterpretation, simplify the procedure and potentially reduce administrative burden. • Harmonisation of requirements of the GAD with those of the Eco-design Directive to ensure these do not conflict may be a useful exercise to prevent confusion. A reference to the Eco-design Directive within the GAD may also clarify the situation. • It may be possible to include industrial appliances within the scope of the GAD if a more flexible type-approval system was introduced. For example, if the manufacturer was allowed to change certain factors provided that the appliance remained within a set of design parameters (i.e. EC-type examination could potentially be undertaken by assessment of the technical documentation only – as under Option 2). • The introduction of CE marking for industrial appliances that undertake the same function as appliances already covered by the GAD (e.g. ovens that offer the same functions in an industrial environment as a bakery oven in a restaurant). • Rather than providing a declaration of conformity with the product, these could be displayed on a designated website (or centralised database) should the consumer wish to see this. This would reduce administrative costs for manufacturers having to print and distribute a copy of this with each appliance.	• Outlining the requirements for Member States to provide additional gas supply information, may inadvertently restrict the types/categories of gas used in Member States. This should be avoided. • Inclusion of industrial appliances within the scope of the GAD would mean that the product 'type' would need to be approved, which would restrict the number of bespoke products manufactured as seeking type-approval for each unit would not be feasible. Also, the cost of bespoke equipment would likely increase as certification would be required for variations in each unit.
Note that Option 3 also considers alignment of the GAD with the NLF, therefore the analysis undertaken for Option 2 will also apply	

Table A3.2: SWOT Analysis of Policy Options 4 and 5 – Extending Scope of GAD	
Strengths	**Weaknesses**
• Inclusion of components outside of the gas appliance up to the gas supply point will mean that the gas risk associated with these products is explicitly taken into account (as opposed to, for example, being 'fit for purpose' under other Directives). Therefore, testing and certification of these under the GAD may be more relevant, potentially leading to improvements in safety.	• Type approval and conformity assessment of components under the GAD may lead to an increase in costs for manufacturers, particularly as they will be regulated under GAD as well as other Directives (e.g. the Construction Products Directive/Regulation). • No significant evidence has been obtained that suggest there are barriers to trade or safety issues relating to components used outside of the gas appliance. • No evidence has been obtained to suggest that manufacturers have experienced barriers to trade or safety issues relating to new products types (gas appliance innovations). Therefore, inclusion of these products within the GAD cannot be justified.
Opportunities	**Threats**
• Extension to new products may provide a more coherent legislative structure for some companies (for example, all gas-related products would be under the same GAD regulatory framework)	• Alteration of the 'appliance' definition to include all gas using products would also potentially include converting transmutation procedures of gaseous fuel. These converting procedures are predominated in the industrial practice, which are already covered by the Machinery Directive. Therefore, inclusion of these within the GAD may create confusion for manufacturers as to which Directive applies.
Note that Options 4 and 5 also considers alignment of the GAD with the NLF and technical updating, therefore the analysis undertaken for Options 2 and 3 will also apply	