IMPACT ASSESSMENT STUDY ON THE REVIEW OF THE MEASURING INSTRUMENTS DIRECTIVE 2004/22/EC

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Public Consultation: Summary of Responses

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Impact Assessment Study on the Review of the Measuring Instruments Directive 2004/22/EC

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Annex: Commission Staff Working Document on the review of the Measuring Instruments Directive 2004/22/EC

GLOSSARY OF ABREVIATIONS

AQUA	European Association of Water Meter and Heat Meter Manufacturers
BEV	Austria - Federal Office for Metrology and Surveying
CECIP	European Association for National Trade Organisations representing the European Manufacturers of Weighing Instruments
CECOD	Committee of European Manufacturers of Petroleum Measuring and Distributing Equipment
CEM	Spanish Centre of Metrology
CIG	Italian Gas Committee
DEA	Danish Energy Association
DKE	German Commission for Electrical, Electronic & Information Technologies
DSTA	Danish Safety Technology Authority
ESMIG	European Smart Metering Industry Group
EVVE	European Association for the Consumption-based Billing of Energy Costs
FACOGAZ	Association of European Gas Meter Manufacturers
GIMELEC	French Association for Electrical Equipment, Automation and related services
MARCOGAZ	Technical Association of the European Natural Gas Industry
NMO	National Measurement Office
NSAI	National standards Authority of Ireland
SWEDAC	Swedish Board for Accreditation and Conformity Assessment
TSI	Trading Standards Institute
UNESA	Spanish Electricity Industry Association
VDDW	Association of the German Water and Heat Meter Industry
VDMA	German Engineering Federation

1. INTRODUCTION

1.1 The Public Consultation

As part of its work on reviewing the Measuring Instruments Directive (MID), the European Commission held a public consultation exercise from 6 September 2010 to 1 November 2010.

The public consultation was hosted on the website of DG Enterprise and Industry[1] and invited interested parties to respond to a number of questions. Additional information was made available through five background documents.

1.2 The Questions and Supporting Material

1.2.1 Overview

An overview of the issues and the associated questions was presented in the document: *Commission Staff Working Document on the review of the Measuring Instruments Directive 2004/22/EC* dated 23 August 2010 (and a copy is attached as Annex 1 which is hereafter referred to as the Working Document).

In essence, there were three topics for respondents to consider:

- an evaluation report on the current MID;
- proposals for amendments to the MID; and
- proposals for new instrument sectors to be added to the MID.

These are discussed in a little more detail below.

1.2.2 Evaluation Report

The Working Document provided a three page summary of the work done by the consultants CSES on the current operation and effectiveness of the MID. The full CSES report[2] was also made available as one of the five background documents.

Respondents were invited to identify any issues which had been omitted from the report and to provide comments more generally on the report and its findings.

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1 http://ec.europa.eu/enterprise/sectors/legal-metrology-and-prepack/public-consultation/index_en.htm

2 **Background document 1: Interim Evaluation of the Measuring Instruments Directive**, Final Report prepared by Centre for Strategy& Evaluation Services (CSES) for DG Enterprise and Industry and dated July 2010.

1.2.3 Amendments to the MID

The Working Document provided a list of 26 changes to the MID which had been suggested by WELMEC[3] and other stakeholders (rather than by the Commission). The full WELMEC working document[4] which details these proposed changes was also made available as one of the five background documents. It should be noted that these proposed changes were developed independently of the Evaluation Report.

Interested parties were invited to identify which of the 26 changes they supported or opposed and to provide further comment regarding their support or opposition.

1.2.4 Additions to the MID

The Working Document provided a list of 18 instrument sectors which could be added to the MID which had been suggested by WELMEC and other stakeholders (rather than by the Commission). The full WELMEC working document[5] which details these proposed changes was also made available as one of the five background documents. As for the amendments mentioned above, these were developed independently of the Evaluation Report.

In addition, two further background documents were made available which had been prepared as part of the work being undertaken by the consultants, RPA on the associated impact assessment[6].

Respondents were invited to identify which of the 18 sectors proposed for inclusion in the MID they supported or opposed and to provide further comment regarding their support or opposition.

1.3 The Responses

Interested parties were invited to submit their responses by e-mail to DG Enterprise and Industry and over 80 responses were received.

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[3] WELMEC is the association of European national metrological authorities. Originally, WELMEC was the Western European Legal Metrology Cooperation. Although WELMEC now includes representatives from Central and Eastern Europe, the acronym has been retained.

[4] **Background document 2: List of changes to MID suggested by WELMEC (Member States and some stakeholders)**.

[5] **Background document 3: List of sectors suggested as candidates for inclusion in MID**.

[6] **Background document 4: Details relevant for impact assessment of 13 sectors**, prepared by Risk & Policy Analysts (RPA) as part of a study being undertaken for DG Enterprise & Industry into potential revisions to the Measuring Instruments Directive; and

Background document 5: Survey of SMEs on Possible Sectors for Inclusion in the Measuring Instruments Directive, report by Risk & Policy Analysts based on a Survey in DG ENTR's Enterprise Europe Network of Small and Medium sized Enterprises (SMEs).

The breakdown of responses by nature of respondent is summarised in Table 1.1

Table 1.1: Summary of Respondents	
Nature of Respondent	**Number**
Private individuals	2
Companies	18
Trade Associations and Organisations	31
Metrological Authorities (including Notified Bodies)	33
Total responses	**84**

In broad terms, it would appear that there was general support not only for the Evaluation Report but also for many of proposed amendments to the MID and for many of the proposals for new instrument sectors to be added to the MID.

At first sight, many of the proposals for changes to the MID appear to be moving towards improved regulation. However, within the context of the EU's Better Regulation strategy[7], there is a need to move towards 'smart regulation' where there is a need to do so while keeping costs to a minimum.

In other words, to suggest that a proposed change is a 'good idea' will not result in EU regulatory change unless the need for such a change can be identified and evaluated and the associated costs (and benefits) have also been shown to be favourable. In this report, particular attention has been given to the reasons given by respondents for and against particular proposals in order to inform such analyses. However, as will become clear, such reasons were very often not provided.

1.4 Structure of the Report

Section 2 provides a commentary on the Evaluation Report. The proposed amendments to the MID are considered in Section 3 while the proposed additions are considered in Section 4.

[7] http://ec.europa.eu/governance/better_regulation/index_en.htm

2. THE EVALUATION REPORT

2.1 Overview of Report

As outlined in the *Commission Staff Working Document*, the main purposes of the evaluation exercise undertaken by CSES were:

- to provide ballpark market estimates for each sector covered by MID;
- to review the effectiveness of the Directive; and
- to make recommendations

The main **conclusions** of the report may be summarised as follows:

- the MID has helped improve the operation of the internal market with the use of a single conformity assessment certificate – although some problems remain;
- the use of a single certificate has led to cost savings;
- there appear to be inconsistencies among the notified bodies in terms of interpreting MID requirements and other guidance as well as differing levels of capacity;
- there is no evidence that the implementation of the MID has generally disadvantaged SMEs – although in some specific sectors (weighing instruments and fuel dispensers) the lack of a sub-assembly approach can disadvantage SMEs; and
- a key issue is the rather restrictive use by notified bodies of the guidelines of WELMEC posing constraints to using alternative approaches to conform to the essential requirements.

The main **recommendations** of the report may be summarised as follows:

- develop and implement national market surveillance plans;
- strengthen quality of notified bodies and enhance consistency;
- enhance information exchange among competent authorities concerning instruments certified or rejected through the extension of existing national databases of type certificates
- organise information campaigns to increase the level of awareness of the Directive by manufactures and importers
- use existing representation bodies, including WELMEC, to identify and promote solutions to specific technical issues identified by stakeholders including the combination of old and new components for liquid dispensers other than water (MI-005).

2.2 The Questions and the Responses

In the public consultation, interested parties were asked two specific questions related to the Evaluation Report prepared by CSES:

- ***Are there any issues not flagged in the evaluation report which should nonetheless be included?***
- ***Do you have comments on the evaluation report and the CSES recommendations? Please mention examples of real cases where possible.***

Most respondents answered 'no' to both questions. 12 respondents identified a diverse range of issues which had not been flagged and 16 respondents had further comments to make. It is of note that many of those respondents providing further comments also expressed general support of the report and its findings.

2.3 Issues Not Flagged

2.3.1 Views from Member States (MS)

Five MS provided comments:

- The Czech Republic noted that earlier comments submitted to the Commission from MS had apparently not been taken into account;
- Sweden noted that greater clarity was required concerning the differentiation between automatic machines (as covered by the MID) and non-automatic weighing machines (as covered by the NAWI Directive);
- An Irish Authority (BGN) identified the need for MID regulation over micro-generation systems[8];
- The Netherlands noted that permitting differing accuracy classes for specific applications (for example in respect of large scale water meters[9]) could lead to problems amongst Member States; and
- France noted that they had experienced an issue with milk dispensers (which are covered by MID) relating to imports of non-certified dispensers from Italy[10].

2.3.2 Views from Other Respondents

Seven responses were received from other respondents including:

- A railway industry association (***FIF***) was concerned about the lack of comment on 'interoperability' as it applied to railways (which are not covered by MID). Such views are reinforced by detailed arguments provided by ***SNCF***;

8 Micro-generation systems in themselves are not covered by MID.

9 Large scale water meters are currently not within the MID and a proposal to extend the MID to include them was one of the proposals outlined in the public consultation exercise - as considered in more detail in Section 4.14 of this report.

10 According to the French submission, this was because Italy had taken exercised its right of optionality to remove milk dispensers from its regulatory requirements. As a consequence, non-certified dispensers from Italy were finding their way on to the French market where MID certification is required.

- A gas industry association (***Facogaz***) was concerned about the lack of detail concerning the requirements for 'smart' gas meters[11];
- An instrument manufacturer (***Alfons Haar***) was concerned about the lack of coherence between instruments and systems approved under MI-005[12] for sales to the public. Further comment on the need to clarify the requirements for gas elimination under M I-005 was made by another rmanufacturer (***Tryges***);
- A instrument manufacturer (***Hale***) was concerned over the variations in national fiscal demands (e.g. for taximeters[13]) which leads to a loss of harmonisation; and
- A German organisation (***DKE***) raised a concern over EMC (electro-magnetic compatibility[14]) and electricity meters.

2.4 Further Comments

2.4.1 Views from Member States (MS)

Further comments were provided by six MS:

- The Czech Republic noted some factual errors regarding the Czech Republic and optionality;
- The Netherlands would like to have seen more general discussion concerning the reasons for, and importance of, the MID – and these views were shared by France; and
- The UK, Greece and Lithuania provided several comments in general support of the evaluation report.

2.4.2 Views from Other Respondents

10 further views were received from other respondents including:

- A German association (***EVVE***) would like to have seen a stronger discussion on the merits of the MID while, at the same time, recognising that further improvements could be made – views which were shared by the weighing industry association (***CECIP***);
- A gas industry association (***Facogaz***) supports the notion that further proposals are required to improve the MID;

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[11] A proposal to amend the MID Annex for Gas Meters (MI-002) to include more requirements was one of the proposals outlined in the public consultation exercise - as considered in more detail in Section 3.13 of this report.

[12] MI-005 is the MID Annex for: *Measuring Systems for the Continuous and Dynamic Measurement of Quantities of Liquids other than Water*.

[13] Taximeters are covered by MID Annex MI-007.

[14] Note that immunity of measuring instruments to electromagnetic interference forms an integral part of MID and instruments covered by MID are exempt from the immunity requirements of the EMC Directive (89/336/EEC of 3 May 1989).

- A French association (***Syndicat de la Mesure***) and the company ***Satam*** supported the recommendations for a sub-assembly approach[15] under MI-005 and for further clarity on what constitutes a 'repair';
- The recommendations for a sub-assembly approach under MI-005 were also supported by the fuel dispensing association (***CECOD***) and French company (***Alma***);
- The equipment association (***VDMA***) was supportive of the report and its conclusions and was keen to see an extension to the certification of sub-assemblies; and
- General support for the report and its findings in respect of water and heat meters was provided by industry trade associations (***VDDW*** and ***AQUA***).

[15] Proposals to amend the MID Annexes MI-005 (relating to *Liquids other than Water*) and MI-006 (*Automatic Weighing Instruments*) to extend the use of the sub-assembly approach were two of the proposals outlined in the public consultation exercise - as considered in more detail in Sections 3.21 and 3.22 of this report.

3. PROPOSED AMENDMENTS TO THE MID

3.1 The Questions

The specific questions asked in the consultation on the 26 changes to the MID proposed by WELMEC were

- ***Which of the changes listed in Annex 3 should be made to the MID and why? Please identify in particular:***
  - ***a) Any barriers to trade experienced (see also Annex 2 on the Mutual Recognition Regulation)***
  - ***b) Any need to adapt to technological development and/or risk that harmonisation would hinder it***
  - ***c) The EU policies to be supported***
  - ***d) Other reasons supporting the need for the change***
  - ***e) The expected costs and benefits of the change, e.g. compliance costs will be raised by x% of turnover and there are resulting benefits of y% of turnover as compared with the costs incurred under a 'no change' option.***
  - ***f) Why standards and/or guidance are not sufficient as alternatives to harmonisation?***

- ***Which of the 26 suggestions identified in Annex 3 for changes to the MID do you oppose and why? In relevant cases, why do you consider standardisation and/or guidance as better alternatives to harmonisation?***

Summaries of the responses for and against each of the 26 proposals are presented in the sub-sections which follow.

Please note that while some respondents indicate their full support for a particular proposal, others state that they agree with the proposal (or with its aims) in principle but have objections to specific aspects of the proposed solution. Where this report indicates the number of stakeholders supporting and opposing a particular proposal, these responses are usually counted as supporting the proposal. However, information on the number of respondents supporting a proposal should always be read in conjunction with information on objections against the proposal's specific aspects expressed by these respondents, which is usually summarised in the same section that presents the key arguments supporting the proposal.

3.2 No 1 Define 'Functions' in Specific Annexes

3.2.1 Summary of Proposal

The aim of this proposal is to clearly define functions that are within the scope of the MID and/or to define the "measuring system". This would be achieved by means of amending Article 1 of the MID in the following manner:

Scope

This Directive applies to the devices and systems ~~***with a measuring function***~~ *defined in the instrument-specific annexes* ***with a measuring function*** *concerning water meters (MI-001), gas meters and volume conversion devices (MI-002), active electrical energy meters (MI-003), heat meters (MI-004), measuring systems for continuous and dynamic measurement of quantities of liquids other then water (MI-005), automatic weighing instruments (MI-006), taximeters (MI-007), material measures (MI-008), dimensional measuring instruments (MI-009) and exhaust gas analysers (MI-010).*

It is proposed that the above change would result in a clarification of the scope of the Directive in that it would be applicable to systems which are defined in the instrument-specific annexes. This is expected to prevent different interpretations with respect to the Directive's application to devices permanently or temporary connected to a meter.

However, the proposal also notes that WG 11 "WG 11 see no further need for a definition of "functions beside the functions defined in the specific annexes" if an amendment of Annex MI002 … MI004 with requirements on legally important additional functionality (see 11.3-6) will happen."

For additional background information on the proposal please refer to Background Document 2.

3.2.2 Respondents and Prevailing Opinions

A total of 27 respondents provided their opinions on this proposal and overall, there appears to be more respondents (13) agreeing with the proposal than disagreeing (10) while several respondents have not provided a clear response (e.g. noted that it is of high importance that notified bodies interpret the Directive in a uniform manner but are against including additional functions not related to the measurement into the scope of the Directive, e.g. communication functions).

3.2.3 Key Arguments Supporting the Proposal

Of the respondents supporting the proposal, the vast majority do not provide any specific reasons to explain their support. The only exceptions are the ***Danish Energy Association (DEA)*** which notes that additional functions in electricity meters are on the increase and the fact that they are not included in the MID "has given rise to a lot of discussion between users of MID." Estonia (Ministry of Economy) notes that this would contribute to eliminating "possible different interpretations by the manufacturer and the notified bodies in respect to the devices permanently or temporary connected to a meter which may be considered or which needs to be considered during a conformity assessment." Greece (Ministry of Peripheral Development) notes that the proposal would prevent possible different legislative solutions in EU Member States.

3.2.4 Key Arguments Rejecting the Proposal

The most frequent reason for rejecting the proposal was that the proposed text change was deemed not clear or not dealing with the present lack of clarity.

In addition, the ***Technical Association of the European Natural Gas Industry (MARCOGAZ)*** asks "with this proposal, where does the measuring system end? The example given in the proposal is today not a common practice." The point that the MID should not cover devices without a measurement function or functions related to measurement was made by a number of respondents (not all of whom however clearly oppose the proposal).

3.3 No 2 Modification of Subassemblies

3.3.1 Summary of Proposal

At present, the possibility to have subassemblies MID-certified is limited to heat meters and only to a few subassemblies. The aim of this proposal is to extend this possibility to more categories of measuring instruments but at the same time to retain the necessity to certify the complete measuring instrument before putting it into use. It is proposed that it would be the responsibility of the assembler to ensure the full conformity of the complete instrument.

Please refer to Background Document 2 for the full text of the proposal.

3.3.2 Respondents and Prevailing Opinions

Overall, 39 respondents provided their opinions on this proposal (five companies, 11 organisations and 21 metrological authorities[16]) with a total of 18 being in favour of this change and 20 opposing the proposal. However, nine of the 20 responses that were against the proposal were from German public authorities (eight from regional authorities and one from federal authorities). Therefore, counting responses from Germany as one collective response significantly alters the balance of opinions with more respondents being in favour than against the change (more organisations are in favour than against, three companies are in favour while two are against and metrological authorities are divided equally between proponents and opponents of the proposal).

3.3.3 Key Arguments Supporting the Proposal

Most respondents did not provide detailed reasons explaining why they support the proposal.

Three respondents (France – Bureau de la Metrologie, ***Syndicat de la Mesure, the Committee of European Manufacturers of Petroleum Measuring and Distributing***

[16] Throughout this report, the term 'metrological authorities' is used to refer to public authorities and notified bodies.

Equipment - CECOD) highlighted the importance of this proposal in relation to MI-005 (measurement of liquids other than water). According to France, the proposal will prevent the potential exclusion of parts manufacturers from the market.

The European Association for National Trade Organisations representing the European Manufacturers of Weighing Instruments (CECIP) and the German Engineering Association (VDMA) would welcome the possibility for the instrument assembler to be able to draft a declaration of conformity for the complete instrument using certificates from parts manufacturers. This would avoid imposing an undue burden on final assembler who would otherwise need to apply for a type examination certificate.

According to Austria (Federal Office for Metrology and Surveying, BEV), the proposal puts increased responsibility on parts manufacturers and improves transparency but also lacks a way in which would ensure that the manufacturer responsible for the complete instrument is identified.

3.3.4 Key Arguments Rejecting the Proposal

A number of responses from companies, organisations (***MARCOGAZ, BEAMA, Spanish Electricity Industry Association - UNESA***) and public authorities (Swedish Board for Accreditation and Conformity Assessment – SWEDAC - in Sweden, National Measurement Office – NMO - in the UK) were critical of or queried the purpose behind the need to have the complete instrument certified and claimed that this would lead to benefits from this proposals being lost or to negative impacts such as a costly and lengthy certification process. The following examples of potential negative effects were given:

- an instrument containing three sub-assemblies, each of which can come from three different manufacturers, leading to the need to certify 27 potential combinations of sub-assemblies;
- an electricity meter with an instrument transformer requiring three conformity tests; and
- when a single component is modified, a re-evaluation is needed.

Several Member States raised the issue of insufficient clarity of the proposal. According to the Denmark, the proposed approach will bring confusion as to who is responsible for the complete instrument. Austria (Ministry of Economy) calls for a more precise definition of the responsibilities of the manufacturer of the complete instrument and for a re-working of the text of the proposal for them to be able to support it (there is a broad agreement with the possibilities arising from the proposal). According to Spain (Spanish Centre of Metrology - CEM), the proposal does not make it clear what requirements and procedures are to be followed for partially completed instruments and would instead prefer to use an alternative approach developed by WELMEC (Voluntary Modular Approach). Greece (Ministry of Peripheral Development) also prefers to solve this issue by means of OIML recommendations and WELMEC guides.

Germany pointed out that the end user could attach CE-marked subassemblies (which could now be placed on the market) to an instrument and use these without further metrological assessment. There would therefore be non-CE marked instruments. German

regional authorities raised the issues of component compatibility problems and unclear definition as to who is responsible for the whole instrument.

3.4 No 3 Mix-and-match of New SSDs with Old Dispensers

3.4.1 Summary of Proposal

At present, according to ***CECOD***, the MID requires full system certification that covers both the dispensers and other metrologically significant parts of the point of sale equipment. Therefore, a full system assessment is required even where some of the equipment is replaced.

The aim of this proposal is to permit nationally approved equipment to be mixed with MID approved equipment. This would be achieved by means of the following clarifications to the MID (proposed by ***CECOD***):

1. Notified bodies can issue separate MID compliance certificates for dispensers and/or the metrologically significant part of POS systems.
2. During the transition period, Nationally Approved equipment can be mixed with MID approved equipment without gaining new system approvals.

Two further amendments were requested by ***CECOD***:

1. Self-service devices should become subassemblies; and
2. The Directive must indicate that a MID certified self-service device is required for sale stacking and unmanned sales.

3.4.2 Respondents and Prevailing Opinions

A total of 26 respondents provided their opinions with respect to this proposal with the vast majority of these being metrological authorities. A total of 20 respondents (including eight responses from German regional authorities) were in favour of the proposal and six were against the proposal. All companies and organisations were in favour.

3.4.3 Key Arguments Supporting the Proposal

Most respondents that are in favour of the proposal do not provide detailed reasons for their position. The two Austrian respondents (Ministry of Economy, BEV) note that the problems has already been solved by their national legislation and Estonia (Ministry of Economy) notes that they are in favour because fuel retailers have serious economic difficulties "when it comes to changing the dispensers or metrologically important parts of POS systems (one would need full system certification covering dispensers and POS system)."

3.4.4 Key Arguments Rejecting the Proposal

France, the Netherlands and Spain believe that this is essentially a national matter as it affects instruments already in service or under national legislation or transitional provisions. Sweden wishes to retain the possibility to assess the whole system in case of mixing.

Ireland states that "under national law certificates were granted prior to introduction of MID on complete measuring systems, individual parts of systems such as POS were not certified separately. Any POS system previously covered by a national certificate cannot be linked to a MID dispenser and no MID POS can be connected to a nationally certified dispenser."

However, several of the MS which disagree, would agree with solving this issue by means of the subassembly approach (Denmark, France, Spain and Sweden).

3.5 No 4 Metrological Data Processing Unit (MDPU)

3.5.1 Summary of Proposal

This proposal aims to add appropriate harmonized essential requirements for the metrological data processing unit (MDPU). MDPUs are frequently used together with the measuring instrument. There are currently only limited requirements in Annex 1 and 11.

This would be achieved by means of an amendment to Annex 1of MID (please note that other essential requirements could be included in specific annexes). Please refer to Background Document 2 for the full text of the proposal.

3.5.2 Respondents and Prevailing Opinions

A total of 38 respondents provided their views on this proposal with 27 (including nine responses from Germany) being in favour (or agreeing in principle) and 10 respondents being against the proposal (Austria's Ministry of Economy needs more clarity and detail before fully supporting the proposal). A clear majority of public authority respondents were in favour but the picture is more mixed in relation to companies and organisations (three companies support the proposal and two oppose it; on the other hand, six organisations appear to oppose the proposal while three support it).

3.5.3 Key Arguments Supporting the Proposal

Estonia (Ministry of Economy) notes that the level of protection for directly measured and derived values has to be equal. Greece (Ministry of Peripheral Development) notes that the proposal would ensure measuring accuracy and prevent the development of national requirements. Ireland (National standards Authority of Ireland - NSAI) agrees in principle and prefers a single solution to smart metering registers.

Germany supports the proposal in principle but would prefer a separate Annex MI-000 as inclusion of MDPUs in Annex I restricts the applicability of the essential requirements to those instruments which are named in specific annexes. Annex MI-000 would allow the Commission to mandate CEN-CENELEC with the development of standards and enable it to change requirements via Article 16(2) procedure if need be. Some German respondents also noted that different MPEs (as opposed to one MPE given in the proposal) may be needed for different accuracy classes of utility meters and that there is a need for additional requirements (protection against interfering with the data transfer between the measuring instrument and the MDPU and the possibility for the consumer to check the final measurement values).

3.5.4 Key Arguments Rejecting the Proposal

There appear to be two main reasons for opposition to this proposal.

Firstly, there is a perception that there is no need to include MDPUs into the MID. Denmark, ***MARCOGAZ and CIG (Italian Gas Committee)*** believe that the MDPU is not a measuring instrument and should not be included in the MID. In addition, standards on data loggers, calculators, etc. for gas meters or volume conversion devices are being developed within CEN. ***EVVE (European Association for the Consumption-based Billing of Energy Costs)*** cannot detect any barriers to trade and therefore believes it is not necessary to include these into the MID. ***BEAMA*** notes that for electricity meters all billing data originates from the meter and as long as the MDPU does not produce new legally controlled data, there is no need to extend the MID.

Secondly, four respondents stated that "additional requirements for smart meters for domestic use should belong to their specific annex and not into the essential requirements." The Netherlands (Ministry of Economy) also queried whether this should not be better addressed in specific annexes but was in support in principle or expected to have no objections to the proposal.

3.6 No 5 Real Time Clock

3.6.1 Summary of Proposal

The aim of this proposal is to include in the MID requirements on real time clocks whenever these are used in a measuring instrument for legally important purposes and in this way ensure accuracy of time measurement.

This would be achieved by means of amending Annex I and amending instrument specific annexes which are to give the MPE on time/clock. Please refer to Background Document 2 for the full text of the proposal.

3.6.2 Respondents and Prevailing Opinions

In total, 42 respondents provided their views on this proposal with 32 being in favour, eight being against and two (one company and one organisation) not being against in

principle but calling for careful consideration of costs and benefits and for consideration of existing standards (e.g. EN 62054-21 for electricity meters). While for companies and organisations, the opinions for and against appear to be more or less balanced, all metrological authorities are in favour (unconditionally or in principle) of the proposed change.

3.6.3 Key Arguments Supporting the Proposal

Several respondents highlighted the importance of ensuring the accuracy of the time function in relation to the measurement/billing. Others highlighted the importance of a real time clock for interval metering (the ***DEA*** interval metering is expected become more important in the future).

The Association of European Gas Meter Manufacturers (FACOGAZ) believes that the proposal will prevent potential barriers to trade arising from national legislation. It is further stated that standardisation is not sufficient. Greece (Ministry of Peripheral Development) identified benefits due to prevention of different national legislation and benefits for the users/consumers. Sweden (SWEDAC) believes that it would be useful to require that e.g. electricity meters must have a real time clock.

A number of respondents that agree with the proposal, rather than explaining the reasons for their support, put forward suggestions on how the proposal could be modified.

The European Association of Water Meter and Heat Meter Manufacturers (AQUA) and the Association of the German Water and Heat Meter Industry (VDDW) think it would be preferable for Annex I to refer to time rather than to a clock and manufacturers should be allowed to also develop meters without the time functionality. Furthermore, water and heat or thermal energy meters use batteries which impacts on the time function.

BEAMA and AQUA highlighted the importance of (existing) standards.

The Netherlands (Ministry of Economy) supports the proposal in principle but does not want to see it in Annex I but in specific annexes. Germany's Ministry of Economy supports the proposal but notes that further work will be needed to ensure that requirements in Annex I and in instrument specific annexes are consistent. Alternatively, it is proposed to use Annex MI-000 and standards.

German regional authorities note that the proposal could be supported by PTB's planned server but it is not clear how to achieve the aims of the proposal in the case of clocks which are not integrated in the measuring instrument and there is no possibility to freely set the date/time and consumers may have trouble understanding the concept of UTC (which is in contradiction to requirements in Annex I 10.2 – easy reading of the measured values).

A company (***ENEL***), while agreeing with the introduction of requirements for real time clocks, requests that this only relates to time under legal metrological control and that the last sentence under the last endnote to the proposal dealing with password protection, changes to time and an audit trail is deleted (see endnote *** on Page 12 in Background Document 2).

3.6.4 Key Arguments Rejecting the Proposal

MARCOGAZ notes that "as the potential to increase costs, favour specific technologies and could create barriers to trade. We know that some measurements could be time based in the future, but an 'internal' clock is not the only way doing this. It is conceivable to use different registers for different "tariffs" without the use of a clock. The "timestamp" to change the tariff rate could be given by a remote clock or by an external (remote) source. See as an example the day and night "registers" used for many years to register the electricity use. The important issue is that the consumer can verify the applicable "regime" on the meter without the use of any tools. For the benefits of the consumer, the technologies used should be left to the competing market."

Eurelectric and UNESA do not "believe that the 'consumer protection' given by putting clock requirements in the MID justifies the additional costs of the need to then test them, especially as future smart meter systems may have the ability (if permitted) to synchronise internal clocks to further improve continuing accuracy." These organisations have also raised a number of issues regarding the clarity of the concept of the clock not being inside the same housing as the instrument, checking by the concerned parties, re-setting/synchronisation.

Eurelectric further notes that "if something is to be included, then a simple specification requiring x seconds per day, maximum drift is not considered sufficient and some reference to temperature influence is required, as is something about the thresholds for which synchronising would apply (although this might be best left to the AMI system specification)."

Three respondents (***Alma, Satam and CECOD***) state that "additional requirements for smart meters for domestic use should belong to their specific annex and not into the essential requirements." ***EVVE*** notes that they cannot detect any barriers to trade. The inclusion of real time clocks in smart meters into the MID is only needed for utility meters and not for smart meters.

3.7 No 6 No Exploiting the MPE

3.7.1 Summary of Proposal

The aim of the proposal is to apply the principle of not exploiting the MPE to all instruments (based on Directive 2009/137/EC, this principle already exists for Annexes MI-001 to MI-005).

This would be achieved by means of including one of the following two additions in Section 7 (Sustainability) of Annex I: *"The measuring instrument shall not exploit the MPE or systematically favour any party."* or *"A measuring instrument shall be designed so as to prevent the exploitation of MPEs in view of favouring one party."*

For additional background information on the proposal please refer to Background Document 2.

3.7.2 Respondents and Prevailing Opinions

A total of 33 respondents provided their views with respect to this proposal and the vast majority (27 but including 9 responses from German regional authorities) appear to be in favour of the proposed change (in full or in principle) and five respondents are against the proposal.

Of those respondents that commented on the two proposed versions of the wording, three appear to prefer the first one (the ***Danish Energy Association*** only supports the proposal if the first version is adopted; this is because the first wording does not introduce nay changes with respect to electricity meters and the second wording is seen as not feasible). On the other hand, the UK Trading Standards Institute prefers the latter wording which is seen as more effective in addressing the issue of human exploitation.

3.7.3 Key Arguments Supporting the Proposal

The majority of respondents did not provide detailed information as to the benefits that could be accrued from this proposal. Austria's Ministry of Economy stated that they support the extension of the rule to other instruments as the "subjective" focus on a sub-set of instruments runs contrary to Austria's constitution. The UK (the Trading Standards Institute) notes that this amendment will improve consumer protection and fair trading and Estonia (Ministry of Economy) stated that the problem with MPE exploitation could occur outside MI-001 to MI-005.

While supporting the proposal, Austria (BEV) put forward additional proposals including:

> *"MI-006 Automatic Weighing Instruments: many products are weighed using these kind of instruments. The rule should be to have it also as close as possible at the true value and not to use the MPE against or in favour of the customer.*
>
> *MI-007 Taximeters: Adjustment leading to favouring one party leads to unfair pricing and unfair competition. Taximeters of course need to be adjusted to the technical equipment of the car, but for fair trade issues the instruments should be basically adjusted and manufactured in a correct way.*
>
> *MI-008 Material measures: Too short or too large length measures or capacity serving measures which are correctly marked, but always have negative deviation would be a tool to undermine fair trade. The same goes for Annex MI-009 dimensional measuring instruments."*

While German regional authorities agree with the proposal in principle, it is noted that the current wording is not clear and as a consequence the requirement would be difficult to enforce. The German regional authorities also highlight the following (potential) definition of exploitation of the MPE: for instruments with an error curve, exploitation occurs when all errors have the same sign and none of these errors is below one half of the MPE. For instruments with an error curve and an error correcting feature the error exceeds one half of the MPE (please note that this is a short summary of their proposal).

A similar proposal was put forward by a private citizen responding to consultation who suggested that Annex 1 is amended to read as follows: "a measuring instrument shall be designed so as to prevent the exploitation of MPEs in view of favouring one party. When the errors all have the same sign, they shall not exceed a half of the MPEs stated in the specific annexes."

3.7.4 Key Arguments Rejecting the Proposal

There appear to be two main reasons as to why respondents do not agree with the proposal:

- **lack of clarity of the proposal** - the Czech Republic states that the proposal is not clear and can possibly lead to different interpretations which may give rise to barriers to trade. Germany says that the text of the proposal is ambiguous and it is not clear whether it relates to each individual instrument or an instrument type; and

- **the requirement would be difficult to enforce** - Germany notes that this requirement would be almost impossible to enforce. If this requirement relates to each individual measuring instrument, than it may be advisable to narrow down the MPE range. The Netherlands states that the prevention of MPE exploitation for instruments in use is within the remit of the Member States. It is also noted that it is "almost impossible" to prove the exploitation of MPE and (where MPE is too lenient) the solution should be to narrow the permissible range.

3.8 No 7 Temperature Limits

3.8.1 Summary of Proposal

This proposal aims to resolve an existing contradiction between Annex 1 and Annex MI-006 in the Directive. This would be achieved by means of amending Article 1.3 of Annex MI-006 as follows:

> *For the mechanical and climatic influence quantities: The upper temperature limit and lower temperature limit can be otherwise specified as in Table 1 of Annex I with a minimum range of 30 °C unless otherwise specified in the following chapters of this Annex. The mechanical environment classes according to Annex I, paragraph 1.3.2 are not applicable. For instruments which are used under special mechanical strain, e.g. instruments incorporated into vehicles, the manufacturer shall define the mechanical*
> *conditions of use.*

For additional background information on the proposal please refer to Background Document 2.

3.8.2 Respondents and Prevailing Opinions

A total of 23 respondents expressed their views on this proposal (this included 2 companies, 4 organisations and 16 public authorities and one notified body). Of these, the vast majority (21) are in favour of the amendment (either fully or in principle).

3.8.3 Key Arguments Supporting the Proposal

A company (***DELTA***) noted that the proposal will "reduce the costs for automatic weighing instruments for some parts of the food industry (primary meat and fish industry), and give SMEs better possibility for market their products in other countries."

Estonia (Ministry of Economy) states that they are a country with temperature fluctuations in excess of 30ºC and therefore they support this proposal. Greece (Ministry of Peripheral Development) notes that automatic weighing instruments (MI-006) should fulfil the same requirements as non-automatic ones.

Denmark notes that while they support the proposal, the change is not sufficient as "there is a conflict between Article 8.3 and Annex 1, point 1.3.1. The rule in Article 8.3 is that MS shall use Annex 1, Table 1 when specifying temperature limits. The rule in Annex 1, point 1.3.1 is that manufacturers shall use Annex 1, table 1.3.1 when specifying temperature limits for their instruments. However manufacturers may use other temperatures if allowed in the specific annex. This possibility is not possible for Member States. Accordingly conflicts may arise (or may be used to create technical barriers to trade)." No further information on these barriers to trade was provided.

CECIP and VDMA support the clarification and note the possibility of MS potentially referring to Annex I (instead of referring to Annex MI-006 which duly takes into account the purpose of the instrument). It is noted that the current situation may lead to differences in interpretation (an example of a weighing instrument which is used in clean rooms in the pharmaceutical industry is given) and may result in trade barriers, hinder the uptake of new technologies and increase the cost of instruments.

Marcogaz additionally requests that one could "harmonise the different temperature limits in the different Directives applicable to the measuring instruments. For several measuring instruments in the scope of the Measurement Instruments Directive, other European Directives are applicable. For example for gas meters measuring at pressures above 0,5 bar the Pressure Equipment Directive is also applicable. It is useful for the manufacturers and the users to harmonize the different ranges between the different directives."

3.8.4 Key Arguments Rejecting the Proposal

BEAMA notes that "any change should reference EN standards so as not to create multiple and inconsistent requirements for electricity meters" and Sweden (SWEDAC) states that they do not see any reason for the change as Annex MI-006 should be considered as allowing a reduced range of temperatures (additional to Annex 1).

3.9 No 8 Sealing

3.9.1 Summary of Proposal

The aim of the proposal is to provide a means to detect access to the sealed parts of an instrument after it has been put on the market or into use. The proposal is to establish a requirement similar to that which applies to CE marking (non-transferability) and add a means of identification of the person who has affixed it. This will be achieved by means of adding the following sentence to Article 8.2 in Annex 1:

In the case of physical seal it shall be self destructive upon removal and bear a marking to identify who has affixed it.

For additional background information on the proposal please refer to Background Document 2.

3.9.2 Respondents and Prevailing Opinions

A total of 39 respondents provided their views on this proposal. This included 24 public authorities (including eight German regional authorities), one notified body, three companies and 11 organisations.

Overall, respondents supported the proposal (fully or in principle) and only four respondents disagreed and in the case of two responses it was not possible to determine whether the respondent is in favour of the proposal or against it.

3.9.3 Key Arguments Supporting the Proposal

A number of respondents agree with the proposal but have not given any reasons as to why.

The Austrian authorities (BEV and Ministry of Economy) listed benefits that the proposal would have in relation to the enforcement of the MID. The UK (the TSI) notes that "this will improve the metrological integrity of measuring instruments by reducing the likelihood of unauthorised intervention and the perpetration of fraud, thereby improving consumer protection and fair trading." ***DEA and BEAMA*** note that this is already common practice with respect to electricity meters.

As with other proposals, many of the respondents that support the proposal, rather than elaborating on the reasons for their support, requested various types of amendments.

Eurelectric supports the proposal but requests that the possibility for the purchaser to specify the type of seal to be used which has been dropped from the most recent draft of WELMEC's Guide to Sealing of Utility Meters be reinserted. ***UNESA*** makes the same request.

German regional authorities in principle support the proposal but note that the text is not sufficiently developed and in particular 'the who' (private persons or legal entities) has not

been specified and the registration of seals in a central database is missing too. One of Germany's regional authorities also misses a separate legislative provision on stamping.

3.9.4 Key Arguments Rejecting the Proposal

Marcogaz and CIG state that the "MID concerns the placing on the market and putting into use. This proposal is about the in service use of the instrument and is out of the scope of the MID."

Denmark (DSTA) simply notes that the present text is sufficient and Sweden (SWEDAC) notes that they have not experienced any problems and should the proposal be adopted "there would be a need for a register over all seals in use. Who should be responsible for keeping and updating a register like that?"

While not entirely clear whether this means that they do not support the proposal, it appears that Ireland also has some reservations: "the wording of the Directive is sufficiently wide to allow the proposed text to be used as 'standard' thereby conferring presumption of conformity to any such sealing facilities. Specific technical solutions should be avoided in the Directive text."

3.10 No 9 Clarification of the Meaning of Hard Copy

3.10.1 Summary of Proposal

The aim of this proposal is to clarify the term "hard copy" which can be translated into national legislation in different ways. It is proposed that Article 10 of Annex 1 is amended as follows:

10.1 Indication of the result shall be by means of a display or hard copy in the form of a printout or storage.
10.2 The indication of any result shall be clear and unambiguous and accompanied by such marks and inscriptions necessary to inform the user of the significance of the result. Easy reading of the presented result shall be permitted under normal conditions of use. Additional indications may be shown provided they cannot be confused with the metrologically controlled indications.
10.3 In the case of hard copy, if it is a print out it shall be easily legible, in case of a storage it shall be made easily available and both shall be non-erasable.
10.6 In case of storage, indication of the values via a display (or by means of a software on a screen) under legal control must be possible

For additional background information on the proposal please refer to Background Document 2.

3.10.2 Respondents and Prevailing Opinions

A total of 31 respondents gave their views on this proposal. 24 (including eight regional authorities in Germany) were in favour of the proposal and six were against it. One respondent (the Austrian Ministry of Economy) simply requested an amendment of the proposal (the term hard copy should be replaced by the term printout and the proposed text which refers to storage be applicable to MI-006 only). The majority of respondents were metrological authorities but there were also three companies and four organisations.

3.10.3 Key Arguments Supporting the Proposal

CECIP and VDMA state that a clarification is necessary because the term hard copy is presently interpreted differently in different Member States which results in public authorities and notified bodies experiencing difficulties when carrying out type examinations. Manufacturers are said to be affected by legal uncertainty.

Greece (Ministry of Peripheral Development) states that the proposal would prevent differences between national legislation. Several respondents agree in principle and provide an explanation as to why they do not agree unconditionally or request amendments to the proposal. A company (***ENEL***) suggests that sub-clause 10.6 should read as follows: *In case of storage, indication of the values via a display (or by means of a software on a screen) with appropriate certified rules under legal control must be possible.* German regional authorities state that for the purpose of consumer protection, a signature should be used in order to ensure the authenticity and integrity of measured data (this is not fully ensured by proposal No 10). The German Ministry of Economy states that, unless the proposal's intention is to interpret hard copy as including storage, Article 10.6 may be redundant as it is similar to Article 7.6. The UK only supports the revised Working Group 2 wording of the proposal.

3.10.4 Key Arguments Rejecting the Proposal

Several respondents expressed concerns about the scope of the proposal. ***Marcogaz*** opposes the proposal because it believes that this is essentially a problem with the translation of the term and it does not affect MI-002 (gas meters and volume conversion devices). Denmark (DSTA) points out that it may be preferable to change instrument specific annexes rather than Annex 1 as in respect of some instruments, the proposal may not provide a sufficient level of consumer protection (while in respect of others, such as catchweigher Class X, the proposal is acceptable). The Dutch Ministry of Economy believes that this issue mainly relates to automatic weighing machines and it should be possible to resolve it by means of guidance.

BEAMA expressed "considerable concerns" about this proposal for two main reasons: firstly, BEAMA states that as this proposal requires that a separate display connected to the meter must be included in the MID certification, "it will not be possible to allow customers to purchase or accept other separate displays with improved functionality, as these would fall outside the MID certification. It must be accepted that the separate display should not be included in the legally controlled area. Any legally controlled display should be provided on the meter, especially as it is not possible to guarantee that the separate display is still available and working." Secondly, it is noted that "careful thought

should also be given to the practical means of allowing customers to examine interval data (if this is the basis of the bill) as the display on the meter is a difficult source of such data."

A company (***DELTA***) believes the proposal does not ensure sufficient level of consumer protection but provides no further information.

3.11 No 10 Display of Legally Important Results

3.11.1 Summary of Proposal

The proposal consists of two sub-proposals:

- **Proposal A** - Requirements for IT-based displays (as opposed to on-site displays) which display metrologically controlled values (the installation of such a display shall be voluntary and there shall be no discrimination against users preferring a conventional on-site solution); and
- **Proposal B** – Requirement for the display of legally important results: all legally important results shall be retrievable on a legally controlled display on the meter.

The above aims are to be achieved by means of amending Annex 1 of the Directive. Please refer to Background Document 2 for the full text of the proposal.

3.11.2 Respondents and Prevailing Opinions

A total of 40 respondents provided their views and 27 (including eight German regional authorities) are in agreement with the proposal (either unconditionally or in principle) while 12 are against it. Five companies provided their views and three are against the proposal, of the ten organisations that responded to consultation, five are in favour of the proposal (and one appeared to be in favour of a part of the proposal only while rejecting another part) and of the 25 public authorities/notified body, 20 support the proposal.

3.11.3 Key Arguments Supporting the Proposal

Only two respondents explain the reasons that lead them to support the proposal. The ***DEA*** states that it would be important for instrument specific annexes to define the period of time for which the data should be stored in the meter and notes that this would reduce trade barriers (no details on existing trade barriers were provided). Estonia notes that there is a need to clearly differentiate between legal measurements and unofficial measurements and legal measurements need to be subject to requirements.

As with other proposals, a number of respondents who support the proposal or agree with it in principle have provided suggestions as to how the proposal could be improved.

Echelon and ESMIG requested that the Directive also defines which legally important results should be displayed (and any requirements on them) and in doing so refers to the relevant international standards. The amount of information that has to be displayed

should be limited to information related to billing. ***Eurelectric*** also asked which are the legally relevant results and who determines which results are legally relevant.

Sweden (SWEDAC), while agreeing with the proposal in principle, states that they "can not judge if the proposal at hand is the best way to proceed." According to SWEDAC, Clause 10.5 is not sufficient (e.g. when two tariffs are used – no further explanation is provided) and there is a need to further develop this Clause. Germany also agrees in principle but requests changes to Clause 10.5 which is proposed to read as follows:

> *"Whether or not a measuring instrument intended for utility measurement purposes can be remotely read it shall in any case be fitted with a metrologically controlled display ~~accessible without tools to~~* ***for*** *the consumer. The reading of this display is the measuring result that serves as the basis for the price to pay. When the measuring instrument provides further processing of the measuring results for the trading transaction, a durable proof of the measuring result and the information to identify the transaction shall be available for the consumer* ***on request*** *at the time the measurement is concluded."*

For additional background information on the proposal please refer to Background Document 2.

3.11.4 Key Arguments Rejecting the Proposal

A number of comments focussed on the right of the consumer to choose a "traditional solution." ***ERDF*** disagrees with the requirement that the consumer be given the choice to avoid solutions which he does not want and states that "the choice of the display available on a meter is the responsibility of national official bodies (government, regulator, metrological legal authority, and distributor) and not a right of the customer." ***Eurelectric and UNESA*** state that the consumer/utility relationship (the consumer can chose the type of display) is outside the scope of the MID and is rather a matter for national regulatory authorities. In addition, they note that the change proposed for specific Annexes is difficult to understand and "there is reference to distributor (and in the explanations to third parties, end user, customer, and person installing the meter) which the MID does not recognise." Spain (CEM) does not see how the requirement that "there shall be no discrimination against users preferring a conventional on-site solution" can be enforced.

Four respondents stated that additional requirements for domestic smart meters should be included in their specific annex and not into essential requirements.

Austria (BEV) notes that the proposed text is not acceptable as there is no requirement for the results to be available without the use of additional tools (thus reducing consumer protection) and the second sentence and the last endnote in the proposal ("the consumer shall have a choice to avoid solutions which he does not want") are deemed obsolete. Denmark (DSTA) also identified an insufficient level of consumer protection arising from the proposal.

Furthermore, ***Eurelectric*** disagrees with Clause 10.5 and suggests that it be modified to include the following sentence: "...shall be fitted with or connected to a ...display" which is suggested to cover future smart metering developments.

Marcogaz states that this would be "an additional burden on utility trying to resolve any disputed account and could lead to customers having no confidence in the measurement result from the instrument. It is not economical and technical justified verifying the meter with its remote 'IT based' index." Ireland (NSAI) notes that there should be a common solution for registers and displays.

3.12 No 11 Changes to MI-001 (Water meters)

3.12.1 Summary of Proposal

Two proposals have been put forward:

- **Proposal A: Change of MI-001 concerning the minimum ratio of Q3/Q1.** The proposal notes that a ratio below 40 is not state of the art and does not properly cover the consumer behaviour (small flows or dripping taps are not or not correctly measured). After a change of MI-001 there shall be no extension of the validity of existing MID certificates with ratio Q3/Q1 < 40.

- **Proposal B: Changing the definition of a water meter to include combination water meters.** This will prevent different interpretations in respect to the possibility to assess water meters, which include more than one measurement transducer to reach large ratios of Q3/Q1. The aim should be reached by a changed definition of a water meter.

Please refer to Background Document 2 for the full text of the proposal.

3.12.2 Respondents and Prevailing Opinions

A total of 27 respondents (one company, three organisations, 22 public authorities and one notified body) provided their views on this proposal and with the exception of Greece which has expressed some reservations, all respondents agree with the proposal fully or in principle (or where they comment on one of the two proposals only, they agree with one of the two – the only exception is Denmark where DSTA only agrees with proposal A but has no opinion on Proposal B as it believes that combination meters are already covered and no change is necessary)

3.12.3 Key Arguments Supporting the Proposal

AQUA and VDDW have stated that the proposed changes are supported because they adapt to the technological development without creating any barrier to trade. More specifically, it is stated that a minimum of Q3/Q1 of ≥ 40 is seen as the minimum state of the art and the harmonised standard (EN 14154) is being amended accordingly. With regard to the inclusion of combination water meters, benefits highlighted include the

avoidance of different interpretations of Annex MI-001 as regards the possibility to assess water meters, which include more than one measurement transducer in order to reach large ratios of Q3/Q1 and the fact that the proposal keeps Annex MI-001 open to future technological development.

Austria (Ministry of Economy) notes that Q3/Q1 > 40 instruments will be increasingly used in the future and regulating them at the European level will make trade and their use easier. In addition, Denmark (DSTA) stated that consumer protection would improve as underperforming meters will be excluded from the market.

3.12.4 Key Arguments Rejecting the Proposal

Greece (Ministry of Peripheral Development) has identified some benefits for users/consumers but is "against introducing in MI-001 the missing parts of Directive 75/33CEE, i.e. heavy industrial water meters and any water other than 'clean water' since cost of the change of those instruments would be higher than the benefits."

3.13 No 12 Changes to MI-002 (Gas meters)

3.13.1 Summary of Proposal

The aim of this proposal is to include requirements on time/clock, multiple register, interval meter and on displaying of all legally important result with respect to gas meters.

Please refer to Background Document 2 for the full text of the proposal.

3.13.2 Respondents and Prevailing Opinions

A total of 27 respondents provided their views on this proposal and 24 of them (including eight responses from German regional authorities) supported the proposal fully or in principle. Most respondents (23) were metrological authorities.

3.13.3 Key Arguments Supporting the Proposal

Denmark (DSTA) provides the following reasons in support of the proposal: requirements on time/clock would reduce technical barriers to trade (these are not further specified) and are necessary for interval metering and for the open electricity market; requirements on multiple registers are also expected to reduce technical barriers to trade and make time-dependent tariffs possible; and requirements for displaying legally important results are not in line with smart metering.

Austria (BEV) and ***Bord Gais Networks*** notes that there is a need to ensure accuracy and consumer protection in relation to forecourt dispensing services and appreciate the harmonisation brought about by the proposal. Austria's Ministry of Economy notes that smart meters will become more popular in the future and that regulating them at the European level will make their trade and use easier. However, it is also noted that maximum permissible errors for registration devices and the scope of the requirements

need to be further defined. Estonia (Ministry of Economy) identified benefits relating to modernisation, harmonisation and consumer protection.

A number of respondents, while agreeing with the proposal (or at least agreeing in principle), provide suggestions as to how the proposal could be improved.

German regional authorities agree with the proposal in principle but as these changes are relevant to all utility meters, they would prefer that they are inserted in Annex I (Part 3), a new Annex MI-000 MDPU in conjunction with harmonised standards.

Spain (CEM) believes that for telecommunications systems in utility meters to be effective, there need to be foundations for interoperability and connectivity (at least between counters and point of concentration of readings) which would make switching between suppliers easier for consumers (they could switch suppliers without switching meters).

The Czech Republic proposes to replace the term "import/export" in Clause 5.7 with the term "directions of flow (positive and negative)".

However, LNE (a French notified body), while agreeing in principle, has called for the wording of the proposal to be improved (no further suggestions were given).

3.13.4 Key Arguments Rejecting the Proposal

Marcogaz provided the following reasons for opposing the proposal:

> *"Marcogaz questions whether the Measuring Instruments Directive should go into time measurement and displaying the price to pay, as the Measuring Instruments Directive (MI-002) is only concerned with the correct measurement of the volume or mass of gas that passes through the meter and to ensure that this volume or mass was correctly recorded on the index. Therefore we do not support the addition of a clock (time) in the MID. A timestamp could be given by a clock or by an external source. The multiple and interval registers are already covered in section 10.2 and 10.5 of Annex 1 of the existing Measuring Instruments Directive. Therefore we do not support the reopening of the Measuring Instruments Directive now to add registration device and interval register and/or demand. There seems to be confusion in the WELMEC proposals with respect to what is a register. Is it a memory or an indication of results? Therefore adding registration device in the Measuring Instruments Directive would raise more issues than it would solve. A memory and a display make part of the fundamental definition of the gas meter, as given by MI-002."*

Ireland (NSAI) called for a single solution dealing with the register, display and clock of a smart gas meter and Sweden (SWEDAC) noted that the proposals are formulated in a complicated manner and they cannot support them even though they can agree with (some?) elements in the proposal.

3.14 No 13 MPE of Gas Meters

3.14.1 Summary of Proposal

There are two proposals:

- **Proposal A - inclusion of MPE for gas meters which indicate only the amount of gas at base conditions.** There are gas meters on the market which indicate the volume at base conditions rather than at actual conditions and legal certainty is needed for these meters. This change would clarify that for gaseous fuel measuring systems for vehicles conformity assessment on the basis of MI-002 is not appropriate.

- **Proposal B – inclusion of MPE for gas meters in respect to different temperature ranges.** MPE should be increased for the higher and lower end of the temperature range. This is expected to lead to a harmonisation with the approach taken in MI-001 and MI-003.

Please refer to Background Document 2 for the full text of the proposal.

3.14.2 Respondents and Prevailing Opinions

A total of 29 respondents provided their views on this proposal with 26 of them being in favour of the proposal (either fully or in principle and either with one or both sub-proposals). All but four respondents (two companies and two organisations) were metrological authorities. Please note that eight respondents were German regional authorities.

3.14.3 Key Arguments Supporting the Proposal

Facogaz fully agrees with both proposals and notes that both proposals are needed in order to adapt legislation to technological developments, increase legal certainty and harmonise approaches in MI-001 to MI-003. However, ***Facogaz*** also proposes the following modification of Proposal B: "The text in 2.1 below Table 1 shall then be read: The MPEs of Table 1 shall be fulfilled in a range of 50°C extending symmetrically around the temperature specified by the manufacturer that lies between 15°C and 25°C. Outside this range, an additional increase of one half of the MPE is permitted in each interval of 10°C. The text in 2.2 then has to remain as it is today in the MID, just adding in the first sentence "and a gas meter which only indicates the volume at base conditions."

Austria's Ministry of Economy notes that these instruments will become more popular in the future and that regulating them at the European level will make their trade and use easier. According to Greece (Ministry of Peripheral Development), Proposal B will lead top reduced meter costs for applications in a large temperature range. Spain (CEM) supports Proposal B but with respect to Proposal A notes "but the wording of the amendments in paragraphs 4.1.1 and 4.2.1 seem confusing and not understood if the overall percentage of error is about the error indicated in paragraph 2.1 or on the error and spread as indicated in 2.2."

3.14.4 Key Arguments Rejecting the Proposal

Marcogaz provided the following input indicating that while they agree with the principle of the proposal, they propose a different solution:

> *"We agree with Proposal A on page 33 in the background document 2 to "include MPE for gas meters which indicate only the amount of gas at base conditions", but we do not believe it is necessary to change the Measurement Instruments Directive to solve this issue. An instrument like this has already been placed on the market and put into use that has already received its MID Conformity Assessment Certificate. We would however suggest that the base conditions shall be clearly stated on the meter since they are not the same in every European Member State. Since the measuring result used in this type of meter can be influenced by gas composition, the range of suitable gases shall also be stated on this kind of meter. We suggest these issues are subject of a guideline or a standard. We also can agree with the principal of Proposal B on page 33 in the background document 2, "to change the MPE of the gas meters in function of the climatic environment temperature", but not with proposed values. Technological design of the meters did not deteriorate since the entry into force of the MID. The MPE for the gas meter within the normal temperature range for the climatic environment of -10°C to +40°C should not be increased as this is a common practice. Outside this temperature range an additional increase of 1/2 MPE could be permitted in each interval of 10°C. There is no need to increase the permissible shift after the durability test."*

Bord Gais Networks states that they support the proposal but "give reference to the comments submitted by Marcogaz."

Denmark (DSTA) notes that Proposal A increases the MPE and as a consequence, consumer protection is decreased. Sweden (SWEDAC) noted that the proposals are formulated in a complicated manner and they cannot support them even though they can agree with (some?) elements in the proposal.

3.15 No 14 Gas Energy Measurement

3.15.1 Summary of Proposal

The proposal includes measuring instruments for gas energy into the MID. These are meters which measure the energy gaseous fuels on site in order to improve the handling of different gas qualities (compositions).

The inclusion of these devices into the MID could include a subassembly approach for calorific value determination devices, determination of MPEs and meter classes.

Please refer to Background Document 2 for the full text of the proposal.

3.15.2 Respondents and Prevailing Opinions

A total of 26 respondents provided their views on this proposal with 13 agreeing with the proposal unconditionally or in principle and 13 rejecting the proposal (however, eight of these 13 respondents were German regional authorities).

3.15.3 Key Arguments Supporting the Proposal

Bord Gais Networks highlighted benefits in terms of clarification/harmonisation of the market.

Greece (Ministry of Peripheral Development) identified benefits relating to reduced barriers to trade but provided no detailed information on existing barriers. LNE, a French notified body, pointed out that they support the proposal in principle but its wording needs further development. Spain (CEM) also notes that they have doubts whether the MPEs are adequate and states that it needs to be considered whether these instruments will need periodic calibration and monitoring which could result in increased costs. In Paragraph 10.2 Part II, the range should be increased to at least 3kWh/m3.

3.15.4 Key Arguments Rejecting the Proposal

The main comments relate to the fact that such instruments do not exist yet and it may be difficult to set any requirements or it may be advisable to await the development of standards. For example, ***Marcogaz*** notes that these instruments do not yet exist and it is too soon to publish legislation. It is further noted that legislation may inhibit technological progress and proposed requirements are not realistic.

Sweden (SWEDAC) noted that the proposals are formulated in a complicated manner and they cannot support them even though they can agree with (some?) elements in the proposal.

3.16 No 15 Instrument Transformers

3.16.1 Summary of Proposal

The proposal is to include instrument transformers for electricity meters within the scope of MI-003.

Please refer to Background Document 2 for the full text of the proposal.

3.16.2 Respondents and Prevailing Opinions

A total of 33 respondents provided their views on this proposal with 25 being in favour (in principle or unconditionally), six being against and one not providing a clear view. Respondents who are in favour are mostly public authorities and include eight German regional authorities. When companies and organisations are considered separately, four

organisations disagree with the proposal while only two agree and one company disagrees while two agree.

It is not clear whether ***ENEL*** supports or rejects the proposal but it is noted that instrument transformers should be tested and certified independently and there should be no requirement to certify the complete system; such a requirement would increase the complexity of certification and result in trade barriers. It is also noted that accuracy Classes 1, 3 and 5 should be removed from the proposal. Other, more technical, reservations were also expressed by ***ENEL*** with regard to the missing security factor, the need for an additional test point (e.g. at 400% of the rated current class) and the need for specific clauses for both current and voltage transformers dealing with advanced technologies such as electronic transformers (for electronic transformers this clause could refer to prEN 61869-1).

3.16.3 Key Arguments Supporting the Proposal

Austria's Ministry of Economy notes that these instruments will become more popular in the future and that regulating them at the European level will make their trade and use easier. Denmark (DSTA) notes that the proposal will reduce technical barriers to trade (these are not further specified). Estonia (Ministry of Economy) notes that these instruments are used together with electricity meters for billing and taxation and benefits from the proposal include "improved billing and consumer protection for commercial and light industry applications." Greece (Ministry of Peripheral Development) identifies benefits relating to reduced barriers to trade (these are not further specified) and improved harmonisation.

DEA supports the proposal in principle but requests some amendments to the proposal (these are reproduced below). The reason for their support in principle is that "instrument transformers are necessary parts of the metering system for larger customers and therefore they should be included in MID. This will also reduce or eliminate barriers of trade caused by different rules in different EU Member States." No further details of the perceived trade barriers are provided.

The German Commission for Electrical, Electronic & Information Technologies (DKE) notes that it is "typical" for electricity meters to be only partly regulated by the MID and there is now a "great variance" with regard to requirements on functions that are outside the scope of MID. Harmonisation would thus improve free movement of goods and establish a comparable level of consumer protection throughout the EU. DKE agrees with the use of the New and Global Approach to regulate within a single legal system based on international standards. It is further stated that the current standards alone do not solve the issue of the different national conformity assessments. Some aspects of the proposal are not covered by existing standards while for "some additions standards exist but in respect to legal metrology it is not necessary to request the entire set of standard requirements."

However, many respondents who support the proposal provided suggestions as to how the current proposal could be amended/corrected. Some of these suggestions are reproduced below.

Deutsche Bahn requests that "Chapter B11 on page 46 the additional standard value of rated secondary voltage "150 V" should be added to the list. This additional value should be added because most of the railway vehicles in Germany use 150 volts as secondary voltage."

DEA notes that Classes B and C are not defined in Annex I, accuracy requirements for some classes are not given in Table 4 and 5, the power factor of the burden is not given in Article 16 and the rules for assessing the complete instrument are not given.

Spain (CEM) notes that the proposal includes requirements which are not based on EN60044-1 which may lead to a conflict with the IEC. It is further requested that Section 7 includes an asterisk in the column 120 minutes and in the centiradians section, in Paragraph 9 and 16 the range of extension should be optional.

UK's NMO supports the proposal only tentatively and only in principle and states that they will consider this proposal in detail only should there be sufficient support from the industry (it is noted that the proposal would lead to an increased cost for the industry). German regional authorities also support the proposal only in principle and call for random sampling (e.g. in relation to Module F) to be clearly excluded from conformity assessment of instrument transformers.

3.16.4 Key Arguments Rejecting the Proposal

Most detailed reasons for rejecting the proposal were submitted by industry organisations ***Eurelectric, UNESA and BEAMA***.

The key industry association, ***Eurelectric***, is "absolutely opposed to the introduction of requirements for Instrument Transformers (ITs) into the MID." The reasons for this were provided in Eurelectric's 2009 Report on the Measuring Instruments Directive (this is not reproduced here) but some additional reasons were given in their response to public consultation (some of these are also repeated by ***UNESA*** which is a member of Eurelectric). These include:

- it is not clear which MPEs apply to a combination of a meter and an instrument transformer (MPEs in the proposed Part IV or in Part I?);
- this proposal, in conjunction with Proposal No 2 (Subassemblies), suggests that the whole instrument would have to be conformity-tested again which increases costs and "operational complexities";
- it is unclear what marking would be attached to ITs[17] hence it is not clear how Part IV compliant products could be recognised;
- some standard values of rated output which are included in this proposal are not based on the relevant IEC standards and these could conflict with IEC standards (no further explanation has been provided). In addition, it is not necessary to determine them (e.g. the proposed value for current transformers is too low for billing purposes);

[17] The following reasons were given by Eurelectric "as they are sub - assemblies, they cannot have the 'M' mark affixed as they are not Measuring Instruments, nor can they have the CE mark affixed as they do not comply in full [underlined by Eurelectric] with this (or any?) Directive as required by Article 7.1."

- it is proposed that the 120 sub-columns under the phase displacement column are also marked with an asterisk; and
- no MPE has been defined for some IT classes.

BEAMA gives the following reasons for opposing the proposal:

- instrument transformers are not measuring instruments but passive components and they are used in diverse applications and specified to a diverse range of requirements; and
- there are currently no trade barriers as manufacturers refer to harmonised standards (EN 60044-1 for current transformers and EN60044-2 for voltage transformers; in fact, some clauses in the proposal are based on these standards). Therefore, no benefits can be expected from the proposal but costs would be incurred.

ESMIG and Echelon note that instrument transformers and meters are purchased separately and therefore cannot be type tested together. In addition, they refer to issues linked to manufacturing (though no details are provided).

The Netherlands (Ministry of Economy) note that instrument transformers are only used in industrial environments and as such they fall outside the scope of MI-003.

Sweden (SWEDAC) noted that the proposals are formulated in a complicated manner and they cannot support them even though they can agree with (some?) elements in the proposal.

3.17 No 16 Changes to MI-003 (Electricity meters)

3.17.1 Summary of Proposal

This proposal comprises two sub-proposals:

- **Proposal A** - include in MID requirements on time/clock, multiple register, interval meter and on displaying of all legally important result with respect to electricity meters. In addition, additional functions relating to "power" (partly) would also be included within the scope of the MID.
- **Proposal B** – delete Class A.

Please refer to Background Document 2 for the full text of the proposal.

3.17.2 Respondents and Prevailing Opinions

A total of 37 respondents provided their views on the proposals. These include seven organisations, five companies, one notified body and 24 public authorities. In total, 29 respondents support the proposal (including eight German regional authorities), three are against and five do not provide a clear indication of their position or support some elements of the proposal but not others.

It total, support seems to be more widespread among metrological authorities (24 in favour of the proposal and one against) than among other respondents (eight companies and organisations support the proposal while two oppose it and three do not state whether they are in favour or not or support some elements of the proposal but not others).

3.17.3 Key Arguments Supporting the Proposal

The opinions of respondents (other than metrological authorities) which support the proposal (in full or in part) or did not indicate a clear preference are summarised below.

DEA states that they support the proposal relating to the energy flow in both directions as "embedded, small scale generation will become a natural part of the distribution grid in the future. To have different rules (or different meters) for the measurement of the two energy flows to and from the customer introduces additional costs which in the end will have to be paid by the customer." Requirements on time/clock are supported as they are expected to "reduce barriers of trade and ensure fair billing of the customer with interval metering" (no details on existing barriers to trade were given). The proposal relating to displaying all legally important results is supported because it provides a "more precise description" of the requirements. The deletion of Class A is also supported as "new static meters can easily be built to accuracy Class B. Furthermore, using class B meters ensures a more accurate billing of the customer without substantial extra cost. Class A meters are, therefore, no longer installed in Denmark."

DKE gives the same reasons as under Proposal 15 (instrument transformers).

ESMIG (European Smart Metering Industry Group) and Echelon are not against the proposed rules on multiple register and interval meter in principle but foresee high testing costs; however, they also expect some positive impacts in that the proposal would avoid the need for national approvals. ***BEAMA*** provides the same statement with respect to the proposal seeking to establish common requirements on the interval meter.

Enel notes that the proposed Article 5.4 should not only refer to a display but also to a register and that the 1s per day clock MPE in Article 8.1 is not sufficient and should rather refer to EN 62054-21. In addition, it is proposed that Part II refers to Mandate M/441 and ongoing CENELEC standardisation (no explanation is provided as why this should be done).

GIMELEC (the French Association for Electrical Equipment, Automation and related services) states that with regard to electricity metering there is "no urgency" to widen the scope of the MID but it appears to be "necessary to improve the MI - 003 (electricity metering) to remove certain ambiguities that undermine its effective harmonization ("light industrial" area, data protection 'legal relevant')."

ERDF's statement calls for the introduction of the sub-assembly approach into MI-003 which would be similar to that currently given in MI-004 for heat meters (the full text of their proposal is not reproduced here). The proposal considers the following sub-assemblies: current sensor, voltage sensor, calculator, and the display unit. The ERDF is of the opinion that the subassembly approach should allow for separate certification of

sub-assemblies without another certification of the complete measuring instrument. ERDF expects that the sub-assembly approach would lead to the following benefits:

- "allow to separate the parties of the meter which have different lifetimes, particularly in order to reduce environmental impacts;
- allow to make technological evolutions easier, particularly in order to offer DSM services to the customers; and open the possibility to make metrological periodic verification in situ."

Austria's BEV supports the proposal but requests the following modifications: "Proposal A: It shall be stated more clearly that to all parts (interfaces, registers,…) of a meter which generate billing relevant results the requirements of the directive are applicable. Proposal B: It should be up to the national authority to decide which meter class have to be used for the different fields of operation." Austria's Ministry of Economy supports the proposal as these instruments are expected to become more and more popular in the future. However, it is requested that as Part II (Points 9.3 to 9.6) refers to features which relate to the load profile, it should be clarified that the MID also covers the load profile and the term load profile should be either explicitly mentioned or at least a reference to its definition should be included. The issue of interfaces should also be mentioned in the requirements.

Denmark (DSTA) provided the following information:

- "Include requirements on time/clock - Supported. It reduces technical barriers to trade. It's necessary for interval metering (tariff varying from period to period) and for open electricity market. It's part of smart metering concept.
- Include requirements on interval meter: Supported. It reduces technical barriers to trade. It's necessary for open electricity market. It's part of smart metering concept.
- Add requirements for display of legally important results: Supported. It's necessary to change the text of MID. The current text ensures consumer protection by is not in line with 'smart metering'.
- Delete Class A: Supported. Class A meters are not state of the art. The MPEs are far too wide to protect the consumer.
- Include meters that measure in both directions ('import/export'): Supported. Solar panels and windmills can from time to time produce more electricity than consumed by the owner. Today this surplus of electricity has to be measures by an extra meter. It's cheaper to have a meter that can measure in both directions."

Please note that DSTA does not provide details on existing barriers to trade.

The German Ministry of Economy supports the proposal in principle but notes that it should be examined whether some functionalities which are common to more utilities could be included in Annex 1 or in a new Annex MI-000 MDPU. The German regional authorities agree with the proposal in principle but request changes in relation to separate additional devices and data transfer and the MPEs for these (other suggestions are not reproduced here – see MI-10-072 for more details).

Greece (Ministry of Peripheral Development) identified benefits relating to reduced barriers to trade (no further information on these is provided). Estonia (Ministry of Economy) identified benefits in relation to "modernisation, harmonisation and consumer protection."

UK's NMO supports the proposal only tentatively and only in principle and states that they are "broadly in support of proposal to extend the requirements to import/export metering although interval metering and demand measurement seems a step too far. A significant amount of work will need to be undertaken if the resulting display is not going to be extremely confusing to the consumer. We will consider the proposal in more detail should there be sufficient support for this change to proceed."

3.17.4 Key Arguments Rejecting the Proposal

The opinions of respondents who oppose the proposal are given below.

The ***DEA*** states that they do not support the following aspects of the proposal for the following reasons:

- Introduction of a registration device (which can be either be a subassembly or a part of a meter) "gives rise to new problems [such as in] Article 8.3 where an additional increase in MPE by one third is allowed due to the interface between the meter and the registration device. This does not make sense if the registration device is integrated in the meter. A precise definition of the "borderline" between meter and registration device is also missing."
- The proposal relating to interval metering is judged too vague and "a precise minimum period in which data shall be retrievable by the customer must be given. Otherwise it will not be possible to assess whether a meter fulfils the requirement, and member states may choose different interpretations of the expression 'sufficient time', which will introduce barriers of trade" (no details provided).
- The proposal to provide the customer with the average power consumption per time interval will be of limited value to them and is not clearly developed in the proposal.
- With regard to the "putting into use", it is noted that the existing rules should be maintained in order to ensure that Member States "use similar meters for similar purposes. This is important for the trading of electricity across borders."

ESMIG, BEAMA and Echelon oppose the removal of Class A and ***BEAMA*** "is concerned about" the proposal to include requirements on multiple register because "it seems unwise to prematurely fix the regulations and risk prohibiting solutions that may be needed to enable smart metering. It would make more sense to carry out this exercise after smart metering has been designed." BEAMA further states that "it is currently illegal in the UK to add the import and export registers. We do not understand t he value of requiring this value to be determined and displayed. It has no direct relevance to any meaningful parameter" and that the requirement on the clock of 1 s/day is not consistent with any standard and "should be referenced against existing standards."

Eurelectric and UNESA (please note that UNESA is a member of Eurelectric and the two organisations have provided nearly identical consultation responses) oppose the

deletion of Class A meters as "it is not for the MID to dictate economic decisions of the Utilities as to the optimum class of meter for a particular use, provided it is allowed within the legal framework of the Member State, and it should be noted that Utilities have used Class 2 meters (the international equivalent of Class A) for over 60 years without problems! Looking at subsequent proposed amendments to Annex MI‑003 (this Proposal and the following one) it is not apparent that requirements for Class A meters are actually deleted."

Other issues raised by Eurelectric and UNESA include the following (please note that this is a non-exhaustive summary only):

- lack of consistency between the different proposals (Proposal 15 and 16);
- lack of clarity with regard to registration devices (is it still a sub-assembly if it is an integral part of the meter?) and possibly in relation to instrument transformers and separate communication modules;
- with regard to provisions on export metering, Eurelectric notes lack of clarity and potential problems with adding more information to the name plate;
- it is not clear what is meant by the reference to demand (maximum, average, instantenous) and who would be affected by this provision other than large commercial/industrial customers;
- it is not clear how an interface can generate influences that affect the MPE (it is further noted that "if having a registration device separate from the meter affects the MPEs of the system by up to one third, it should not be allowed to be fitted");
- further reservations have been expressed as regards Section 9 (absence of a requirement that there be an incrementing value of total energy, lack of clarity of what is the bases for billing where an interval value is marked as invalid – synchronisation is essential for smart metering and should not invalidate data for billing) and Section 11 (lack of clarity and note * deals with feed-in tariffs which should be regulated at MS level), Articles 9.8 and 10 (lack of clarity and usefulness of providing information);
- Eurelectric also notes that with regard to the accuracy of tariff intervals associated with load switching provision, if customers comprising a large block of load are suddenly switched at precisely the same time, there is potential for enormous problems for the utility company scheduling generation and could even shut down the system (more details are provided but these are not reproduced here – please refer to Eurelectric's consultation response); and
- a number of other issues relating to a lack of clarity of the proposal have been raised (these are not reproduced here in full).

Spain (CEM) opposes the elimination of Class A meters which are widely used in Spain.

Denmark (DSTA) provided the following information:

- The proposal to include 'registration device' as a sub-assembly will "give no-benefit, only problems. Who should be responsible for the complete meter?"
- Deletetion of Points a) and b) in the 'Putting into use' clause "will decrease harmonization legislation and thereby increase barriers to trade."

Despite agreeing with some of the elements of the proposal, SWEDAC cannot approve it because the way in which it has been formulated is too difficult to understand.

3.18 No 17 Changes to MI-004 (heat meters)

3.18.1 Summary of Proposal

This proposal comprises two sub-proposals:

- **Proposal A** - include in MID requirements on time/clock, multiple register, interval meter and on displaying of all legally important result with respect to heat meters. In addition, heat meter additional functions (e.g. temperature data for billing purposes) would also be included within the scope of the MID.
- **Proposal B** – include into the scope of the MID measuring instruments for exchanged thermal energy (heating, cooling and combined meter).

Please refer to Background Document 2 for the full text of the proposal.

3.18.2 Respondents and Prevailing Opinions

A total of 28 respondents provided their views on the proposal and the vast majority (26) are in favour of the proposed change (either in principle or fully); please note that this includes seven responses from German regional authorities. One respondent did not provide a clear indication whether they support or reject the proposal (EVVE) and another one respondent (SWEDAC) cannot approve the proposal.

Please note that ***EVVE*** provided a detailed response which contains an analysis of the provisions in the proposal but this response is too long to be reproduced here.

3.18.3 Key Arguments Supporting the Proposal

AQUA and VDDW note that a relevant standard already exists (EN1434 which includes measuring absorbed energy - cooling) and the proposal will thus bring legislation in line with the standard. The proposal will also reduce trade barriers (detailed information on these was not given), improve consumer protection and support technological development in the future.

Greece (Ministry of Peripheral Development) identified benefits relating to reduced barriers to trade (no details given). Estonia (Ministry of Economy) identified benefits in relation to "modernisation, harmonisation and consumer protection." Denmark (DSTA) highlight benefits relating to reduced technical barriers to trade (detailed description of these is not given), support for an open electricity market and smart metering.

Several respondents provided suggestions on how the proposal could be amended and the main suggestions are reproduced below.

Austria (BEV) notes that there are inconsistencies between Annex I and MI-004 relating to the requirements for the subassemblies, the definition of complete heat meters and the error limits for registration devices. Austria (Ministry of Economy) notes that these instruments will become more popular in the future and that regulating them at the European level will make their trade and use easier but highlights issues that are similar to those mentioned by BEV and calls for an improved definition of the scope of the requirements.

The Czech Republic (Czech Office for Standards, Metrology and Testing) note that the proposal still refers to heat meters in some instances.

German Ministry of the Economy states that as regards additional functionalities they have the same comments as under Proposal No. 16. German regional authorities request that the following amendments to the proposal are made (and give the reasons for this but these are not reproduced here): "1) Part I Nr. 1.1: given up energy (heating) qmax/qmin >= 10; Dqmin >= 3 K absorbed energy (cooling) qmax/qmin >= 2; Dqmin >=3 K; 2) Part I Nr. 3) „The complete heat meter or sub-assemblies of number 7.1 and 7.3 shall not exploit the MPEs or systematically favour any party"; 3) Part III Nr. 13 (Putting into Use): with respect to cool and heat meters of up to qp = 3,5 m3/h temperature sensors at measuring points lower or equal to 16 bar should be built in directly (without a thermowell)."

3.18.4 Key Arguments Rejecting the Proposal

Despite agreeing with some of the elements of the proposal, SWEDAC cannot approve it because the way in which it has been formulated is too difficult to understand.

3.19 No 18 Fuel Dispenser Totalisers for Tax Purposes

3.19.1 Summary of Proposal

The aim of the proposal aims to clarify that totalisers are under legal metrological control. Technical requirements will be fully in line with OIML Recommendation R117-1.

This will be achieved by adding the following article to Annex MI-005:

5.5.4 Additionally Fuel Dispensers may be fitted with a non-resettable totalizer, the scale interval of which may differ from that of the primary display.

For additional background information on the proposal please refer to Background Document 2.

3.19.2 Respondents and Prevailing Opinions

A total of 29 respondents provided their views on this proposal. The vast majority of responses (25) were from public authorities (including seven from German regional authorities), two from companies, one from an organisation and one from a notified body.

The vast majority (27) of respondents agree with the proposal (in principle or fully); however, please note that this conclusion is based on opinions given by Member States and the key trade organisation (***CEDOD***) disagrees with the proposal.

3.19.3 Key Arguments Supporting the Proposal

Austria (Ministry of Economy) believes that the change will make trade and use of these instruments easier. Denmark (DSTA) believes that "the proposal will add no costs to a dispenser but allow countries to regulate these totalisers under MID." Estonia (Ministry of Economy) states that they currently do not use totalisers for tax purposes but support the change "with respect to the future." Ireland (NSAI) states that it is desirable to have these instruments under legal metrological control for tax purposes. Sweden (SWEDAC) simply states that they support the proposal on the basis of the reasons put forward by WELMEC. The UK (TSI) highlights that the proposal to establish several degrees of accuracy is consistent with the approach taken for other measuring instruments and calls for the consideration of sealing arrangements to prevent unauthorised adjustments.

The German regional authorities in principle agree with the proposal but are of the opinion that it should also be required that totalisers comply with requirements on the measurement (e.g. maximum permissible error, etc.). The Czech authorities (Czech Customs Administration and the Czech Office for Standards, Metrology and Testing) provide their own proposals (which are motivated by taxation purposes). These proposals require that dispensers shall be fitted with a non-resettable totaliser and the totaliser (or the measurement result) shall be easily accessible.

3.19.4 Key Arguments Rejecting the Proposal

CECOD states that a "totaliser is [a] standard available in the dispenser calculators. It must be an electronic totaliser, as mechanical totalisers in dispensers with electronic and/or temperature compensation are revolution counters, only. Tax totaliser has nothing to do with measuring results."

3.20 No 19 Solve Lack of Clarity regarding Article 5.3 in MI-005

3.20.1 Summary of Proposal

The aim of this proposal is to clarify the meaning of Article 5.3 in Annex MI-005 (error due to **air or gas** in the liquid) which is currently interpreted in different ways by the different public authorities/notified bodies (this is possibly due to different language translations). This is to be achieved by means of amending the current Article 5.3 to read as follows:

*any percentage of air or gas not easily detectable in the liquid shall not lead to a**n*** ~~*variation of*~~ *error* ***of the measuring instrument*** *greater than:*

For additional background information on the proposal please refer to Background Document 2.

3.20.2 Respondents and Prevailing Opinions

A total of 29 respondents provided their views on this proposal with a total of 14 rejecting the proposed change (including seven responses from German regional authorities) and 14 being in favour. One respondent (Ireland – NSAI) would prefer guidance but if this proves not to be feasible would support a change of the Directive. Most respondents were public authorities (and one notified body) but three companies and two organisations also provided their opinions (all of which were supportive of the proposal).

3.20.3 Key Arguments Supporting the Proposal

Most respondents do not elaborate on the reasons for their support of the proposal. Several respondents state that they support the proposal due to lack of clarity of the current text.

Switzerland (METAS), while supportive of the aim to clarify the current provisions, notes that the proposal does not reflect the current interpretation of the article by the majority of stakeholders and should therefore be amended. It is noted that measurements with gas pockets should not be based on the absolute value of MPE but rather on the relative deviation in relation to the measurement without gas pockets.

3.20.4 Key Arguments Rejecting the Proposal

A variety of reasons for rejecting the proposal have been put forward.

The most detailed reasoning was provided by Belgium (Federal Public Service Economy) which stated the following:

> *"1. In the English, German, French and Dutch versions, the word variation is used. This cannot be misinterpreted. Alternatively, the term "additional error" could be used.*
> *2. OIML R117-1 is very clear in the sense of talking about an additional error.*
> *3. The proposal goes beyond clarifying to modify the requirement fundamentally.*
> *4. There is no further explanation or technical argumentation in relation to how the requirement is to be applied during evaluation tests; the proposal doesn't establish an MPE.*
> *5. In normal use, the gas elimination device doesn't have to work. It is only in exceptional cases that air of gas is present. For measuring systems on trucks the gas elimination device has to function at the moment that a compartment is emptied. In that case another requirement is foreseen in Annex MI-005.*
> *6. There is no consensus within WELMEC on the new proposal.*
> *7. The proposed modification is in conflict with point 2.1 of Annex MI-005 for measuring instruments for LPG. Measuring systems for LPG belong to accuracy class 1. The proposed modification would mean that the maximum permissible error for LPG measuring systems becomes 0,5 % instead of the current 1 %.*
> *8. The consequence of the proposed modification is that other parts of Annex MI-005 would have to be modified (Article 5.3 and 5.4.4).*
> *9. The proposal is clearly in contradiction of the technical requirements in the old approach EEC Directive 77/313/EEC: see point 1.6.1 of the Annex."*

Austria (both BEV and Ministry of Economy) does not agree with the proposal because it is not in line with existing rules and state of the art practice (no further details were provided). In the view of BEV, the proposed text would result in MPE being smaller when gas is present which, according to BEV, makes technically no sense.

The Czech Republic (the Czech Office for Standards, Metrology and Testing) states that the proposal contradicts Point 2.10.1 in OIML R117. A similar point was raised by LNE (a French notified body) who note that the proposal is not in line with the normative document (LNE does not specify whether this refers to OIML R117) and would in effect introduce a change in the way tests are performed without having a corresponding technical justification.

German regional authorities reject the proposal because the proposal focuses exclusively on measuring instruments of Class 0.5. It is suggested that, essentially, measuring instruments must comply with MPE regardless of air or gas pockets.

Other respondents stated that the proposal does not lead to clarity or that a change is not necessary (the problem with lack of clarity "probably" exists in some linguistic versions only and the normative document already provides an explanation) or that it is not desirable to extend the MPEs.

3.21 No 20 Self Service Devices as Sub-assemblies

3.21.1 Summary of Proposal

The proposal is to define SSD's (Self Service Devices) as subassemblies. The aim of this change is to enable producers of SSD's to connect their equipment to existing dispensers and assist some Member States in solving legal and/or practical challenges regarding the use of new SSD's together with pre-MID dispensers.

For additional background information on the proposal please refer to Background Document 2.

3.21.2 Respondents and Prevailing Opinions

A total of 28 respondents provided their views on this proposal; the majority of these were public authorities including eight German regional authorities but there were also two companies, one organisation and one notified body. 15 respondents agreed with the proposal (either unconditionally or in principle), two disagreed and one (UK TSI) argued that the proposed approach should be "dealt with cautiously" for the following reasons:

> "The use of such devices can give rise to issues regarding their compatibility with other components within the measuring instrument system. Evidence exists in the United Kingdom that alterations to sub-assemblies, particularly with regard to software upgrades, can have a detrimental effect on the metrological integrity of the measuring instrument system and the communication and processing of metrological

data, resulting in an adverse effect on consumer protection and fair trading. Furthermore, the integrity of the Type Approval Certificate (TAC) process is also potentially undermined in that the compatibility of measuring instrument systems with a wide range of subsequently installed sub-assemblies can never be properly assessed during the initial certification process. In order to maintain confidence in the TAC process additional safeguards should be considered to maintain levels of consumer protection and fair trading in relation to the subsequent fitting of sub assemblies to existing measurement instrument systems. This may include the imposition of compatibility procedures and declarations of conformity demonstrating that those procedures have taken place."

3.21.3 Key Arguments Supporting the Proposal

Most respondents do not provide any reasoning explaining their support for this proposal.

Two respondents which support the proposal in principle call for a more detailed proposal. Austria (Ministry of Economy) notes that the proposal would make national approval unnecessary. Denmark notes that while in general they are hesitant to support the sub-assembly approach as it obscures responsibility for the whole instrument, in this case, this is not seen as a problem. The proposal would have a positive contribution with respect to trade with SSD's. Sweden (SWEDAC), while agreeing with the proposal, notes that it will not solve the mix-and-match problem. LNE (a French notified body) requests that the subassembly approach be extended to cover all critical parts of MI-005.

3.21.4 Key Arguments Rejecting the Proposal

Greece (Ministry of Peripheral Development) prefers a modular approach based on OIML Recommendations and/or WELMEC guides. Ireland (NSAI) notes that further discussion is needed with respect to the definition of a subassembly and other issues relating to peripheral devices.

3.22 No 21 Subassemblies

3.22.1 Summary of Proposal

This proposal aims to introduce the subassembly approach into Annex MI-006 and provides its definition and establishes the relevant requirements, etc.

Please refer to Background Document 2 for the full text of the proposal.

3.22.2 Respondents and Prevailing Opinions

A total of 28 respondents provided their views on this proposal with 20 respondents (including eight responses from German regional authorities) not being in favour of the proposal. Two organisations (***CECIP and VDMA***) provided their views and both supported the proposal. Two responses from companies were received with one of them being in favour of the proposal and the other one being against it.

3.22.3 Key Arguments Supporting the Proposal

CECIP provided the following input (the reasons given by VDMA were almost identical):

> "CECIP would welcome the opportunity of having official certified parts (subassemblies) which may be assembled together by an economic operator who can draft a "declaration of conformity" for the complete instrument using the certificate of the manufacturers of the parts/subassemblies. This would avoid that unnecessary administrative and economic burden is imposed on final assemblers, who otherwise would need to apply for a type examination certificate under their names. In addition it enforces market surveillance as it refers to the manufacturer who places the main parts of the weighing instrument on the market. This solution would prevent that disproportionate responsibilities are given to assemblers who do not have the opportunity to check for the conformity of all the part by themselves."

Estonia (Ministry of Economy) supports the proposal because the subassembly approach works well in the field of non-automatic weighing instruments.

3.22.4 Key Arguments Rejecting the Proposal

Several respondents note that the proposal has been withdrawn by WELMEC WG2.

Denmark (DSTA) and one company (***DELTA***) note that the proposal will make it unclear who is responsible for the complete instrument and reduce consumer protection. A similar point was made by Norway (NMS) which suggested that the proposal should define which of the manufacturers is responsible for the complete instrument (it is also noted that otherwise the user may be held responsible). Austria (BEV and Ministry of Economy) while supportive of the subassembly approach cannot support the proposed text (e.g. BEV notes that it does not identify the manufacturer responsible for the whole instrument). Austria's Ministry of Economy also supports the subassembly approach but calls for a reworking of the proposed text. German regional authorities note that the proposal is not in line with the existing approach which requires that subassemblies are conformity-assessed together with the measuring instrument.

Greece (Ministry of Peripheral Development) prefers a modular approach based on OIML Recommendations and/or WELMEC guides. The Dutch Ministry of Economy notes that the existing definition of a subassembly is not sufficient. Sweden (SWEDAC) states that NAWIs consist of modules and not subassemblies and as such the concept of subassemblies is not relevant to NAWIs.

3.23 No 22 Verification Scale Intervals for Single or Multi-interval Instruments

3.23.1 Summary of Proposal

The proposal aims to amend Chapter II in Annex MI-006 to bring it into line with OIML Recommendation R51 and to separate the minimum number of verification scale intervals for class XIII and Y(a) for multi-interval instruments with:

0,1 g <= e <= 2 g from 5 g <= e.

Please refer to Background Document 2 for the full text of the proposal.

3.23.2 Respondents and Prevailing Opinions

A total of 30 respondents provided their views on this proposal (25 public authorities, two companies, two organisations and one notified body). 19 respondents expressed support for the proposal and ten respondents were against it (nine out of the ten were German public authorities including eight regional authorities). One respondent (Austria's BEV supports one instruments with 0,1 g <= e <= 2 g from 5 g <= e. but is not happy with the fact that the proposal does NOT reflect OIML R51). All respondents that are not public authorities agree with the proposal.

3.23.3 Key Arguments Supporting the Proposal

The majority of respondents do not elaborate on the reasons for their support of this proposal or simply note that it will achieve consistency with OIML R51. Sweden (SWEDAC) simply notes that they agree with the reasons put forward by WELMEC. ***CECIP and VDMA*** note that the current differentiation between single and multi-interval instruments lead to unfair competition.

Switzerland (METAS) notes that the current proposal (Version 4.1) should be replaced by a more recent version (Version 4.2).

3.23.4 Key Arguments Rejecting the Proposal

The German regional authorities note that the current OIML R51-1 is sufficient and Austria's Ministry of the Economy notes that the proposal does not correspond with OIML R51.

3.24 No 23 Category X Instruments

3.24.1 Summary of Proposal

The use of Category X instruments is currently restricted to e-marked pre-packages. The aim of the proposal is to allow the use of Category X instruments in the case of non e-marked pre-packages.

This is to be achieved by an amendment to Article 2.1 in Chapter II in Annex MI-006 which is proposed to read as follows:

Category X applies to instruments used to check pre-packages including prepackages made up in accordance with the requirements of Directive 2007/45/EC of the European Parliament and of the Council of 5 September 2007 laying down rules on nominal quantities for pre-packed products.

For additional background information on the proposal please refer to Background Document 2.

3.24.2 Respondents and Prevailing Opinions

A total of 19 respondents provided their views on this proposal with 16 respondents being in favour and three opposing the proposal. All respondents who are not public authorities (two companies, two organisations, one notified body) are in favour of the proposal.

3.24.3 Key Arguments Supporting the Proposal

Most respondents either do not provide any reasons for their support of the proposal or simply state that Category X instruments should be available for use for all prepackages. ***CECIP and VDMA*** note that these instruments are aimed at use for all prepackages rather than e-marked ones only and packers need to use the same instrument for all kinds of packages.

LNE (a French notified body) suggests that it may be useful for the proposal to state that "if applicable - i.e in those cases where non 'e' marked pre -packages are subject to the same conformity criteria as 'e' marked pre -packages - category X applies."

Switzerland (METAS) highlights that the legislation mentioned in the proposal is not the correct reference (see below for more details).

3.24.4 Key Arguments Rejecting the Proposal

Austria (BEV and Ministry of Economy) notes that the reference in the proposal is not correct and the proposal should refer to Council Directive 76/211/EEC of 20 January 1976 on the approximation of the laws of the Member States relating to the making-up by weight or by volume of certain pre-packaged products. The Ministry of Economy notes that they would support the proposal if the reference is corrected.

3.25 No 24 High Precision Weighing Instruments

3.25.1 Summary of Proposal

This proposal concerns high precision weighing instruments of classes XI, Y(I), XII and Y(II) which are used for analytical purposes and for checking the net content of pre-packed packages. The aim of the proposal is to provide an exception for these AWI instruments, similar to that which is established under NAWI.

Please refer to Background Document 2 for the full text of the proposal.

3.25.2 Respondents and Prevailing Opinions

In total, 27 respondents provided their views, 24 (including eight German regional authorities) were in favour of the proposal (either in principle or unconditionally), two were against it and one was neither in favour nor against the proposal.

3.25.3 Key Arguments Supporting the Proposal

Most respondents did not elaborate on the reasons for their support of the proposal.

However, ***CECIP*** stated that "high precision weighing instruments of classes XI, Y(I), XII and Y(II) are used for analytical purposes and for checking the net content of pre-packed packages containing, for instance, expensive pharmaceuticals products. For these AWI instruments special regulations are needed concerning minimum number of scale intervals and minimum load. In case this is not ensured, there is no possibility to develop such instruments and market them. Although users like pharmaceutical industry and other operators would like to automate their processes to make them cheaper and more secure, under current rules they are not able to do that. This situation undermines the technological development and renders the processes unnecessarily expensive. We therefore believe the same exceptions as those which are approved and state of the art for NAWIs since many years are also needed for AWIs." ***VDMA*** provided a similar response.

3.25.4 Key Arguments Rejecting the Proposal

The Austrian authorities (BEV and Ministry of Economy) were the only respondents that rejected the proposal. BEV stated that "the proposal is not supported because testing is limited by the smallest weights, being 1 mg. The technical limit is therefore given by the methods of mass traceability. The correctness of the weighing result cannot be verified anymore."

3.26 No 25 Dynamic Setting

3.26.1 Summary of Proposal

The reason for the amendment is a lack of consistency between the MID and OIML OIML R51-1:2006 No. 3.2.3. It is proposed that Chapter II Article 6.2 in Annex MI-006 is amended to read as follows:

When fitted, a dynamic setting facility that compensates for the dynamic effects of the load in motion shall be inhibited from operating outside the load range, and shall be capable of being secured. If dynamic setting by the user is allowed, a facility for automatic and non-erasable recording of any adjustment of the dynamic setting, e.g. an event logger, should be present.

For additional background information on the proposal please refer to Background Document 2.

3.26.2 Respondents and Prevailing Opinions

A total of 28 respondents provided their views on this proposal. These were mainly public authorities (including eight responses from German regional authorities) but two companies, two organisations and one notified body also submitted their opinions. 25 respondents support the proposal while three (two Austrian public authorities and one company) are against it.

3.26.3 Key Arguments Supporting the Proposal

CECIP and VDMA state that current requirements are not clear which leads to misunderstandings.

The Estonian Ministry of Economy supports the proposal and suggests that "in the interest of security any adjustment done concerning dynamic setting should be recorded with a non-erasable method." German Ministry of Economy and regional authorities agree in principle providing that calibration is carried out automatically without the possibility of the user influencing the accuracy of the measurement. Sweden (SWEDAC) simply notes that they agree with the reasons put forward by WELMEC. The UK (TSI) states that "the inclusion of the need for a logging device which can be examined and inspected is desirable in relation to consumer protection and fair trading."

3.26.4 Key Arguments Rejecting the Proposal

All respondents which reject the proposal note that the proposal gives too much responsibility to the user.

3.27 No 26 Improvement of Annex MI-007 (Taximeters)

3.27.1 Summary of Proposal

The proposal is to include in MI-007 (taximeters) specification of the maximum permissible errors for the real time clock and safety requirement concerning automatic switching from position "stopped", if trip is continued.

Please refer to Background Document 2 for the full text of the proposal.

3.27.2 Respondents and Prevailing Opinions

A total of 23 respondents provided their opinions. With the exception of one company and one notified body, these were all public authorities. 21 respondents (including eight German regional authorities) are in favour and two respondents (the German Ministry of Economy and Sweden's SWEDAC) are against the proposal.

3.27.3 Key Arguments Supporting the Proposal

BEV (Austria) and CEM (Spain) prefer real time clock Proposal 1 and CEM states that this provides a higher degree of clarity when compared with Proposal 2. Austria (BEV and Ministry of Economy) and CEM also note that the distance travelled in relation to automatic switching from the "stopped" position should be regulated nationally. BEV also believes that it could be subject to standardisation. CEM also requested that Annex MI-007 be further amended to include an "automatic placement fee" (as opposed to a manual fee) which would increase road safety and consumer protection. Estonia (Ministry of Economy) states that the proposal is supported "in the interest of consumer protection."

German regional authorities agree with the proposal in principle but call for requirements on the pulse generator.

LNE (a French notified body) proposes the following amendments to the proposal: the subassembly approach be applied to the distance signal generator and requirements be set for the protection of the distance signal.

3.27.4 Key Arguments Rejecting the Proposal

The German Ministry of the Economy is of the opinion that automatically switching into the "for hire" mode after payment and travelling 200 metres will lead a customer who decides to travel further in the taxi than originally intended having to pay again the higher initial charge (that is applicable in Germany). Sweden (SWEDAC) believes that the proposed changes are not needed.

4. PROPOSED ADDITIONS TO THE MID

4.1 The Questions

The specific questions asked in the consultation on stakeholder proposals for additions to the MID were

- ***Which of the sectors identified in Annex 4 should be added to the MID and why? Please identify in particular:***
  - ***a) Any barriers to trade experienced (see also Annex 2 on the Mutual Recognition Regulation)***
  - ***b) Any need to adapt to technological development and/or risk that harmonisation would hinder it***
  - ***c) The Union policies to be supported***
  - ***d) Other reasons supporting the inclusion of a sector***
  - ***e) The expected costs and benefits of the change, e.g. compliance costs will be raised by x% of turnover and there are resulting benefits of y% of turnover as compared with the costs incurred under a 'no change' option.***
  - ***f) Why standards and/or guidance are not sufficient as alternatives to harmonisation?***

- ***Which of the sectors identified in Annex 4 should not be added to the MID and why? In relevant cases, why do you consider standardisation and/or guidance as better alternatives to harmonisation?***

Summaries of the responses for and against each of the 18 proposals are presented in the sub-sections which follow.

Please note that while some respondents indicate their full support for a particular proposal, others state that they agree with the proposal (or with its aims) in principle but have objections to specific aspects of the proposed solution. Where this report indicates the number of stakeholders supporting and opposing a particular proposal, these responses are usually counted as supporting the proposal. However, information on the number of respondents supporting a proposal should always be read in conjunction with information on objections against the proposal's specific aspects expressed by these respondents, which is usually summarised in the same section that presents the key arguments supporting the proposal.

4.2 No 27 Reactive Electrical Energy Meters

4.2.1 Summary of Proposal

The proposal is to extend Annex MI-003 to cover Class 0,2 S meters introducing Class D in addition to existing Classes A, B and C and to cover reactive energy and additional functions relating to power.

Please refer to Background Document 3 for the full text of the proposal.

4.2.2 Respondents and Prevailing Opinions

A total of 33 respondents provided their views (three companies, six organisations, one notified body, and 23 public authorities, including eight German regional authorities). 28 respondents appear to be in favour of the proposal, four are opposed and one (***Eurelectric***) did not provide a clear yes or no.

Eurelectric notes that

> "there needs to be some consistency of what the title of MI - 003 is to be. As regards the revised definition of an electrical energy meter, this necessarily measures power (i.e. it is not optional) which it then integrates over time to produce a measure of energy. It is display of power which is currently optional. The integration of reactive energy into MI - 003 seems to have been done in a very simplistic way and there needs to be a check of the validity of applying blanket active energy requirements to this type of meter. For instance proposed IEC 62053 - 24 (currently a CD[18]) distinguishes between transformer operated meters of Class 1S and 0.5S and direct connected meters of Class 1. This does not map across in the text proposed. In general, utilities are comfortable with the accuracy of reactive meters being of a lower order than the equivalent class of active meters, and Eurelectric has previously commented on the difficulties of defining reactive power in the presence of harmonics (one of the influence quantities on MPEs). Similar remarks apply to demand measurement."

4.2.3 Key Arguments Supporting the Proposal

Contributions by respondents which provided most detailed responses are summarised below.

With respect to the inclusion of reactive energy into the MID, ***ESMIG & BEAMA*** state that this is a low priority (and could be discussed later) but they "see issues with common interpretation of the meaning of reactive energy. Measuring methods must be specified considering the requirements of smart metering for consumers."

ESMIG & BEAMA support the introduction of additional meter class "if it leads to simplified management of different meter classes and avoids uncertainty in interpreting national legislation." However, it is notes that as Class 0.2S meters "are usually not

[18] Likely refers to a "Committee Draft".

intended for residential and light industry applications it shall be clarified whether these meters are allowed for such scope or the scope of the MID is extended to heavy industry." In addition, the MID class descriptions should be aligned with the "international terminology (Class D vs. Class 0.2S, etc.). It is further stated that the MPE formula is not "understandable for customers and creates higher cost" and it is proposed to "review the accuracy limits of all classes according to the existing harmonised standards." ***ESMIG & BEAMA*** further note that while in principle they are not against the inclusion of additional functions related to power, the costs and benefits need to be assessed and they "foresee high testing costs. However a positive effect can be that it avoids additional national approvals. Additional functionalities must be described in detail. Should be restricted to functions related to the billing process (e.g. maximum demand)."

Echelon has a similar comment in relation to the inclusion of 0.2S meters (clarification whether they can be used in residential and light industry applications or whether the scope of the MID is extended), alignment of class names between MID and international standards and the review of the MPE formula based on international standards.

DEA supports all three aspects of the proposal: inclusion of an additional meter class is supported because this would enable utilities "to apply one set of rules for electricity meters, which will reduce costs. Barriers of trade caused by national regulation for non-MID meters will also be eliminated" (however, no details on this were provided); inclusion of additional functions is only supported if it is optional and it is noted that the average demand over a long interval parameter is "of limited value to the customer"; and the inclusion of reactive energy is expected to reduce the costs of metering and eliminate barriers of trade (not further details on these have been provided).

BEV (Austria) requests that the requirements on the measurement of time-related indicators such as power and interval metering are also included and that requirements fo Class D cover directly connected meters. Austria's Ministry of Economy notes that these instruments will become more popular in the future and that regulating them at the European level will make their trade and use easier. Denmark (DSTA) and Greece (Ministry of Peripheral Development) note that the proposal will reduce barriers to trade. Estonia (Ministry of Economy) believes that the situation where a meter is regulated partly by the MID and by national legislation (reactive energy measurement) should be resolved. The UK (NMO) notes that while the requirements for reactive energy set by the proposal are the same as for active energy, "it is generally accepted that reactive meters can be of a lower accuracy class than active meters." Ireland (NSAI) agrees in principle with the technical changes (subject to some clarifications) but disagrees with the "proposed amendment of Point 12 [Putting into use and conformity assessment] as it is not clear how a Member State would enforce the provision as currently worded" (no further explanation was provided).

4.2.4 Key Arguments Rejecting the Proposal

A company (***ENEL***) believes that a reference should be made to existing and 'under development' standards in order to give technical requirements with regard to fundamental components and harmonics. In relation to reactive power measurement, ***UNESA*** provided a response that is similar to Eurelectric's but also stated that "there are

difficulties of defining reactive power in the presence of harmonics (one of the influence quantities on MPEs)."

The Dutch Ministry of Economy notes that these instruments are only useful for large installations.

4.3 No 28 New Length Measuring Instruments

4.3.1 Summary of Proposal

This proposal aims to include length measuring instruments not yet covered by the MID (instrument moving instead of product moving) into the scope of the Directive.

Please refer to Background Document 3 for the full text of the proposal.

4.3.2 Respondents and Prevailing Opinions

A total of 23 respondents provided their views on this proposal. All respondents except one notified body were public authorities. All but one (SWEDAC in Sweden) were in favour of the proposal (either unconditionally or in principle).

4.3.3 Key Arguments Supporting the Proposal

Austria's Ministry of Economy notes that these instruments will become more popular in the future and that regulating them at the European level will make their trade and use easier. Austria (BEV) states that the requirements for intermittent measuring electro-optical instruments should be more precise. Estonia (Ministry of Economy) notes that "at the moment the measurements carried out for example in case of real estate transactions are not in scope of legal metrological control (when using instruments like optical length measuring instruments) that are required for measuring tasks in real estate and since protection of consumers, environment, levying of taxes and fair trade is involved, new length measuring instruments should be in the scope of MID." Greece (Ministry of Peripheral Development) notes that the proposal will reduce barriers to trade.

Spain (CEM) is in favour of regulating these instruments but suggests changes to the proposed annex with respect to the accuracy classes (delete Class 3 and introduce new Class 0) hand held distance measuring instruments and requests the introduction of specific requirements on odometers.

4.3.4 Key Arguments Rejecting the Proposal

SWEDAC opposes the proposal but provides no further details explaining their decision.

4.4 No 29 Equipment for the Measurement of the Speed of Vehicles

4.4.1 Summary of Proposal

This proposal aims to extend the MID to cover equipment for the measurement of the speed of vehicles. This would require the amendment of Article 1 to include these instruments in the list of those covered by the Directive and the addition of an instrument specific annex.

Please refer to Background Document 3 for the full text of the proposal.

4.4.2 Respondents and Prevailing Opinions

A total of 24 respondents provided their views on this proposal. With the exception of one notified body, all of these were public authorities. Nine respondents were in favour and 15 were against the proposal (including seven German regional authorities and the German Ministry of Economy). It total, respondents from seven countries (including one from Germany) are in favour of the proposal while respondents from seven countries (including eight from Germany) are against the proposal.

4.4.3 Key Arguments Supporting the Proposal

The Czech Republic (the Czech Office for Standards, Metrology and Testing) believes that the proposal is "relevant for public safety and levying of taxes and duties."

Estonia's Ministry of Transport notes that "including different speed metering equipment (such as laser and radar speed meters, optical speed meters, moving or stationary measuring systems for giving a documentary evidence of violating the speed limits, etc.) to MID is needed considering public interest and road safety. From the point of view of equability of traffic surveillance measurements and law and enforcement throughout whole Union the harmonisation of metrological and technical requirements of those measurement instruments are of great importance."

France (Bureau de la Metrologie) notes that "in the field of road safety, which is a matter for European Policy, several manufacturers and the national authority in charge of speed controls have expressed their interest in the harmonisation of the requirements and certification procedures. The expected benefit for citizens is that they will be equally protected while they travel through Europe. The expected benefit for manufacturers is EC evaluation valid in all MS so less cost to obtain approval and free circulation. There will also be less trouble for MS authorities as the requirements will be harmonised."

Greece (Ministry of Peripheral Development) notes that the proposal will reduce barriers to trade (no details on these were given) and ensure equal protection of citizens while travelling throughout Europe. Ireland (NSAI) agrees in principle (provided trade barriers exist).

4.4.4 Key Arguments Rejecting the Proposal

The main arguments against this proposal relate to the fact that the results are used for judicial purposes and the systems used in the Member States may be too different to allow for harmonisation of requirements and/or harmonisation of these instruments is not within the remit of Directive.

A number of German regional authorities note that in Germany mobile measurement instruments are required to comply with +/- 3 kph and an increase of the MPE to +/- 7 kph would go against German requirements and targets.

The UK (NMO) states that they "would not expect to support the inclusion of any instrument for law enforcement purposes due to previous experience relating to attempts to include similar equipment i.e. Evidential Breath Analysers under the MID."

4.5 No 30 Alcohol Breath Analysers

4.5.1 Summary of Proposal

The purpose of this proposal is to include evidential breath analysers into the scope of the MID. This would require the amendment of Article 1 to include these instruments in the list of those covered by the Directive and the addition of an instrument specific annex.

Please refer to Background Document 3 for the full text of the proposal.

4.5.2 Respondents and Prevailing Opinions

A total of 23 respondents provided their views on this proposal. With the exception of one notified body, all of these were public authorities. Eight respondents were in favour and 15 were against the proposal (including seven German regional authorities and the German Ministry of Economy). It total, respondents from six countries (including one from Germany) are in favour of the proposal while respondents from seven countries (including eight from Germany) are against the proposal.

4.5.3 Key Arguments Supporting the Proposal

The Estonian Ministry of Economy states that "for the reasons of public interest and road safety, legal metrological control of measuring instruments such as alcohol breath analysers should be included into MID."

France (Bureau de la Metrologie) notes that "in the field of road safety, which is a matter for European Policy, several manufacturers and the national authority in charge of speed controls have expressed their interest in the harmonisation of the requirements and certification procedures. The expected benefits for citizens is that they will be equally protected while they travel through Europe. The expected benefit for manufacturers is EC evaluation valid in all MS so less cost to obtain approval and free circulation. There will also be less trouble for MS authorities as the requirements will be harmonised."

Ireland (NSAI) agrees in principle (provided trade barriers exist).

In addition, while supporting the proposal for reasons of "public safety, levying of taxes and duties etc.", the Czech Office for Standards, Metrology and Testing requests that the following changes are made to the proposal:

- "Point 1.3: For a portable or mobile instrument, the environment class that applies is class I. -10 °C -5 °C à to + 40 °C Motivation: At -10 °C, if the instrument is not fitted with a heated mouthpiece, condensation can influence the accuracy of the measurement. At present, no manufacturer can guarantee this requirement. In the Czech Republic, no instrument is fitted with a heated mouthpiece.
- Point 11: take out all the point 11 Motivation: Unclear requirement. It is not clear what the intention is. What value should be pre-set? From the metrological point of view it is hardly acceptable if the user is allowed to set any numerical value that can influence a functionality of a legally controlled measuring instrument. It might be a misunderstanding of a function of Dräger Alcotest 7510 of verbal interpretation of results. (Factory setting: ZERO 0, PASS < 0,10 mg/L, ALERT < 0,24 mg/L, FAIL < 0,48 mg/L, HIGH > = 0,48 mg/L). In the Czech Republic the numerical measured value is required. A subsequent procedure in case of positive result is an issue of national legislation."

4.5.4 Key Arguments Rejecting the Proposal

The main arguments against this proposal relate to the fact that the results are used for judicial purposes and the systems used in the Member States may be too different to allow for harmonisation of requirements and/or harmonisation of these instruments is not within the remit of Directive.

German regional authorities note that the proposal is not clear (the breath temperature is not dealt with) and some of the MPEs are not in line with those in Germany (German law provides an MPE of 20% for concentrations above ³ 2.0 mg/l).

Greece (Ministry of Peripheral Development) notes that in their country "alcohol breath analyzers are not considered as reliable and do not provide evidence in court. The future OIML Recommendation R 126 could serve as normative document."

The UK (NMO) states that they "would not expect to support the inclusion of any instrument for law enforcement purposes due to previous experience relating to attempts to include similar equipment i.e. Evidential Breath Analysers under the MID."

4.6 No 31 Electrical Vehicle Chargers

4.6.1 Summary of Proposal

A concrete proposal is not presented in Background Document 3. However, it appears that many respondents commented on the potential inclusion of electrical vehicle chargers into MID.

4.6.2 Respondents and Prevailing Opinions

A total of 27 respondents provided their views (these were mainly public authorities but also included one company, one organisation and one notified body). 11 respondents are in favour of the proposal (either in principle or unconditionally). 16 (including seven German regional authorities) are against the proposal.

4.6.3 Key Arguments Supporting the Proposal

The ***DEA*** notes that "measurements of electrical energy delivered to customers shall be correct and accurate, and this also holds for energy delivered from vehicle chargers. Therefore, we support, that electricity meters in vehicle chargers are included in MID. Metering in charging spots may require additional functionalities compared to a normal MID electricity meter (e.g. registration of mobile consumers). These new functionalities may potentially be handled by components outside the meter, hence not affecting the MID."

Greece (Ministry of Peripheral Development) identifies benefits in the form of reduced trade barriers (but provides no details on these) and Estonia (Ministry of Economy) notes that "electrical vehicle chargers would need to be regulated similarly in all Member States to guarantee conformity throughout whole EU." Spain (CEM) supports the inclusion of these instruments into the MID and does not believe that standardisation is sufficient to ensure metrological control. They also identify benefits in terms of ensuring interoperability and connectivity.

4.6.4 Key Arguments Rejecting the Proposal

The key argument against the proposal is that electrical vehicle chargers are not measuring instruments (detailed reasoning is however not provided by respondents) or that the proposal does not deal with metrologically relevant issues (such as billing). However, several respondents appear to support the possibility of harmonisation of the (energy) measuring component of the charger.

4.7 No 32 Energy Measurement System for Use on Board Railway Vehicles

4.7.1 Summary of Proposal

This proposal aims to include EMS on-board trains in the scope of the MID in such a way that the MID specifies the generic essential requirements but detailed requirements are given in Directive 2008/57/EC (the Interoperability Directive).

Please refer to Background Document 3 for the full text of the proposal.

4.7.2 Respondents and Prevailing Opinions

A total of 18 respondents provided their views (two organisations, two companies, one notified body and 13 public authorities). Eight respondents support the proposal and ten are against it.

4.7.3 Key Arguments Supporting the Proposal

Deutsche Bahn believes that the proposed approach could solve current problems with national regulation. France (Bureau de Metrologie) and Spain (CEM) highlight the issue of ensuring interoperability.

Estonia (Ministry of Economy) notes that "as far as we understood from the ministry involved with directive 2008/57/EC the requirements on EMS are defined at a rather abstract level. If there is a problem with the conformity assessment procedures we should discuss this more intensified with the persons involved in order to find a solution. The MID could be of use but in that case the MID should contain essential requirements for this type of instruments. Another possibility could be the use of accredited laboratory."

4.7.4 Key Arguments Rejecting the Proposal

Austria (BEV and Ministry of Economy) believes the requirements on these instruments should be defined in the MID. The UK (NMO) also states that "it would be inappropriate for such systems to be included in MID unless all relevant new approach Directive functions were included in e.g. conformity assessment requirements, essential requirements."

Another key argument appears to be that it may be preferable to deal with this issue through Directive 2008/57/EC. Greece (Ministry of Peripheral Development) states that "the scope of MID should be restricted to measuring instruments intended for residential, commercial and light industrial use [and one should] avoid overlapping of the two Directives." Ireland (NSAI) prefers for this issue to be dealt with in Directive 2008/57/EC and considers "that including a new annex in MID which would reference other specific essential requirements and alternative conformity assessment procedures from Directive 2008/57/EC to be so significant as to undermine the structure of the MID." ***SNCF*** also notes that the relevant issues are being dealt with within the framework of the Interoperability Directive.

The ***UK Rail Industry*** notes that the proposed solution suffers from a lack of consistency and clarity with relation to the division of responsibilities between the MID and the Interoperability Directive. ***FIF*** notes that the proposal would lead to "a complex certification process, misunderstanding and interpretation of the requirements, different and diverging requirements laid down in two different […Directives] and increases in terms of cost and delay."

4.8 No 33 Automatic Weighing of Road Vehicles

4.8.1 Summary of Proposal

This proposal aims to include requirements established by OIML R134 into the MID. Please refer to Background Document 3 for the full text of the proposal.

4.8.2 Respondents and Prevailing Opinions

A total of 29 respondents provided their views. These were mainly metrological authorities but also included one company and two organisations. All but one agree with the proposal.

4.8.3 Key Arguments Supporting the Proposal

Arguments put forward by the company (***DELTA***), ***CECIP and VDMA*** relate to a reduction in trade barriers (however, detailed information on these is not provided) and the view that standardisation is not sufficient to provide a clear framework.

Austria (BEV) notes that these instruments are becoming "more and more important for trade and toll applications" and the Austrian Ministry of Economy notes that the proposal's benefits would include a free circulation of these instruments and harmonised requirements throughout Europe. Denmark (DSTA) and Greece (Ministry of Peripheral Development) also highlight benefits relating to free trade.

The Czech Office for Metrology, Standards and Testing requests that "it should be clearly declared that the annex relates to the weighing at low speed only. The Annex is based on OIML R 134 that sets requirements and testing methods that high speed WIM systems are not able to fulfil. The document COST 323 is now used for high speed WIM systems." NMO (UK) also supports legal metrological control only in relation to low speed vehicles used for trade purposes.

Estonia (Ministry of Economy) notes that the need for harmonisation also arises due to the recent expiration of the "transitional period during which the weighing of vehicles could be performed as gross weight measurement by a non-automatic weighing instrument" (Decision 2009/261/EC).

Spain (CEM) requests that the proposal include OIML R134 definition of operating speed and the associated criteria for its determination through the weighing test. The Dutch Ministry of Economy calls for consideration of the inclusion of weighing of individual

axes. Switzerland (METAS) notes that the proposal does not reflect the latest version drawn up by WELMEC (Version 4.2).

4.8.4 Key Arguments Rejecting the Proposal

The German Ministry of Economy notes that these instruments are used for criminal proceedings and therefore are not within MID's remit. Alternatively, the proposal could be restricted to automatic weighing of road vehicles which is used in the commercial sector.

4.9 No 34 Exhaust Gas Analysers

4.9.1 Summary of Proposal

The aim of the proposal is to extend the scope of the MID to cover gas exhaust analysers for motorbikes which measure only CO or CO and CO2. This is to be achieved by changing the definition of an exhaust gas analyser given in Annex MI-010 to include instruments with 4 or less channels.

Please refer to Background Document 3 for the full text of the proposal.

4.9.2 Respondents and Prevailing Opinions

A total of 22 respondents provided their views. All but one response (which was received from a notified body) were provided by public authorities. With the exception of one respondent, all agree with the proposal (unconditionally or in principle).

4.9.3 Key Arguments Supporting the Proposal

Germany (Ministry of Economy as well as regional authorities) supports the proposal but none of the German respondents elaborate on the reasons for their support.

The Austrian Ministry of Economy notes that the proposal's benefits would include a free circulation of these instruments and harmonised requirements throughout Europe. Greece (Ministry of Peripheral Development) expects benefits in terms of reduced barriers to trade (however, detailed information on existing barriers to trade is not provided).

Ireland (NSAI) agrees in principle with the inclusion of instruments to measure diesel emissions.

Sweden (SWEDAC) simply states that they agree with the reasons put forward by WELMEC.

The Czech Office for Metrology, Standards and Testing requests that smoke meters for diesel engines are also added to the proposal.

4.9.4 Key Arguments Rejecting the Proposal

Switzerland (METAS) believes that the inclusion of these instruments into the MID would be counterproductive as these instruments are an obsolete technology which does not fulfil its purpose.

4.10 No 35 Measuring Systems for Compressed Natural Gas (CNG)

4.10.1 Summary of Proposal

This proposal aims to include measuring systems intended for the continuous measurement of flowing quantities (volumes or masses) of compressed natural gas (CNG) into the scope of the MID. The new instrument annex would be based on OIML Recommendation R139 (Compressed gaseous fuel measuring systems for vehicles).

Please refer to Background Document 3 for the full text of the proposal.

4.10.2 Respondents and Prevailing Opinions

A total of 30 respondents provide their views. These included three companies, three organisations and 25 metrological authorities. All respondents agree with the proposal (in principal or unconditionally).

4.10.3 Key Arguments Supporting the Proposal

The key issue raised by some ***companies (Alma, Satam)*** and some ***organisations (CECOD, Syndicat de la Mesure)*** is that "certification is the rule, users will not take the risk of having neither MID nor national certification and of relying on a later recognition based on the Mutual Recognition Regulation."

FIGAWA (the German Association of Companies in the Gas and Water Field) supports the addition of a new CNG dispenser annex and states their preference for this annex to be based mainly on OIML R139. FIGAWA further states that the modification of Annex MI-002 is "not advisable because of the fact that CNG dispenser applications differ greatly from gas meters operating mainly under fairly constant process conditions and in continuous operation."

FIGAWA states that different national regulations are in place and the inclusion of CNG dispensers into the MID will lead to a reduction in trade barriers (no further details are provided). It is further stated that "in the view of the importance of the natural gas vehicles as alternative fuel vehicles that use compressed natural gas (NG) as a clean alternative to other automobile fuels it is highly desirable to support this technology. Therefore refuelling cars should be metrologically regulated regardless of the type of fuel."

Bord Gais Networks notes that there is a need to ensure accuracy and consumer protection in relation to forecourt dispensing services.

The Austrian Ministry of Economy notes that the proposal's benefits would include a free circulation of these instruments and harmonised requirements throughout Europe. Greece (Ministry of Peripheral Development) expects benefits in terms of reduced barriers to trade (however, no details on existing barriers to trade are provided).

Estonia (Ministry of Economy) notes that CNG sales need "to be legally controlled as it concerns public interest, protection of environment, consumers, levying of taxes and duties and fair trading."

German regional authorities note that the CNG measurement does not fit in with gas meters or liquid meters and their inclusion into the MID in a new annex is sensible.

Several respondents note the increasing importance of CNG. Ireland (NSAI) in principle agrees with the proposal.

Sweden (SWEDAC) simply states that they agree with the reasons put forward by WELMEC.

4.10.4 Key Arguments Rejecting the Proposal

Not relevant.

4.11 No 36 Level Gauge on Tank Trucks and Fixed Storage Tanks

4.11.1 Summary of Proposal

The proposal aims to include measuring systems intended for the discontinuous measurement of quantities (volumes or masses) of liquids other than water in fixed or mobile storage tanks into the scope of the MID. The new annex is to be based on OIML Recommendation R85.

Please refer to Background Document 3 for the full text of the proposal.

4.11.2 Respondents and Prevailing Opinions

A total of 37 respondents provided their views; these include 24 public authorities, ten companies, two organisations, one citizen and one notified body. 22 respondents were in favour of the proposal and 14 were against it (however, these include five responses from German regional authorities and three responses are from companies belonging to the same group). It is also of note that the number of respondents supporting the proposal is significantly higher than the number of those rejecting it is mainly based on the opinions of public authorities (16 of them support the proposal while 8 oppose it).

4.11.3 Key Arguments Supporting the Proposal

Examples of arguments for supporting the proposal given by ***companies (DEZIDATA, Fredericia Tankvognsudstyr, Honeywell)*** that responded to consultation are given below (please note that a large number of issues are mentioned by these companies this is not an exhaustive overview):

- one company accepts the inclusion into the MID of tanks trucks (provided their reservations with respect to permissible errors, tampering, assuring correctness of the table for content via height, assuring the volume of the baffle without movement prior to the delivery and assuring that vortexes and other influences do not impact on accuracy) but not of fixed tanks as these are not a point of sale;
- currently, dipstick systems in road tankers are approved under national type approvals resulting in barriers to trade (other companies, ***CECOD and Syndicat de la Mesure*** note that users prefer certification and do not rely on mutual recognition), dipsticks are becoming increasingly popular, nearly all installed dipstick systems fulfil the same requirements as those set by MI-005 and a standard exists (OIML R80: Road and rail tankers with level gauging);
- another company, while supportive of the proposal, requested that the scope of the proposal is clarified to state whether it includes fixed tanks.

Austria supports the proposal but BEV requests a clarification whether rail tankers are included and the Ministry of Economy notes that the proposal will contribute to a free trade with these instruments. Spain (CEM) believes that the proposal only relates to vehicle tanks and would like to see it extended to fixed tanks. Denmark (DSTA) and Greece (Ministry of Peripheral Development) note that the proposal will reduce barriers to trade. DSTA also notes that this technology is becoming increasingly popular (especially for tank trucks) and is replacing conventional tank trucks with meters.

The Czech Republic (Office of Metrology, Standards and Testing) notes that there is a Technical Committe proposal for the development of a new OIML International Recommendation for Measuring system for the volume of liquids in fixed storage tanks. It is further noted that OIML R85 relates to automatic level gauges which are only subsystems. In addition, it is noted that there is a proposal in OIML R117-1 for accuracy class 0.5 (Measuring systems for refuelling aircraft) to move this measuring system to accuracy class 0.3.

4.11.4 Key Arguments Rejecting the Proposal

Examples of arguments for rejecting the proposal given by ***companies*** that responded to consultation are given below (please note that a large number of issues are mentioned by these companies this is not an exhaustive overview):

- these instruments are only relevant to business-to-business transactions and not to sale to the public and as such would be outside the scope of the MID;
- the requirements on tank trucks and fixed storage tanks are very different (in fact, they are based on different OIML recommendations – R80 and R85) and cannot be combined;

- the new Annex of MID for level gauges on tank trucks should establish the same as (not larger than) overall requirements as Annex MI-005 (including the permissible errors caused by size of the baffle vs. temperature, inclination, deformations due to contents of the baffle etc.;
- the proposal should address the "prevention of misuse, e.g. "deadwood" in the compartment, uncontrollable emptying of the pipework, uncontrollable manipulative deformation, not only of the outer shape of the compartment, also the baffles dividing the compartments," and ensure proper sealing;
- OIML R85 is sufficient for fixed storage tanks and additional regulation is not necessary;
- it is important to consider the fact that accuracy is affected by physical damage to the tank, time required for the "waves" in the tank to settle;
- measurement is impacted by the inclination of the tank; and
- as the volume reduces in the compartment during delivery, liquid surface effects (e.g. vortex) occur at high flow rates (this is significant if used for dynamic measurement at the point of sale.

Responses from a private citizen in Germany and from German regional authorities note that the proposal suffers from the following shortcomings:

- the regional authorities note that the proposal establishes requirements that are more lenient than the level of accuracy of existing instruments;
- the minimum specified volume deviation is twice as high as the MPE for Vmin which in effect means that the maximum permissible error is too high (and higher than for tank trucks under MI-005);
- the tilt error (0.3% of the volume) does to ensure the level of protection established by existing legislation;
- there is no MPE for linked devices (such as the temperature sensor; the private citizen suggests that these could be based on MI-005);
- the scale interval is not defined;
- the MMQ is not defined and should be at the most one-fourth of the tank volume (otherwise the MPE could be artificially increased by declaring that MMQ is equal to the volume of the tank); and
- the private citizen suggests that the MPE for the reassessment should not be one half of Emin but should be based on Table 2 (A-B).

In conclusion, it is suggested that the proposal should be based on the PTB-A4.5 which is currently used in Germany.

4.12 No 37 Irrigation Water Meters

4.12.1 Summary of Proposal

The aim of this proposal is to extend the scope of the MID to cover irrigation water meters (as a part of an effort to include water meters measuring water other than clean water). This is to be achieved by means of amending Annex MI-001. Please refer to Background Document 3 for the full text of the proposal.

It is possible that some of these meters are currently covered by the old approach Directive 75/33/EEC.

4.12.2 Respondents and Prevailing Opinions

A total of 24 respondents provided their views; 22 are metrological authorities and two are organisations. 20 respondents support the amendment (wholly or in principle) and five oppose it. Supporters include eight responses from German regional authorities. However, the two organisations that provided their opinions (***AQUA and VDDW***) oppose the amendment.

4.12.3 Key Arguments Supporting the Proposal

BEV (Austria) appreciates the legal continuity of the present regulatory framework and Austria's Ministry of Economy believes that it supports free trade.

The Czech Office for Metrology, Standards and Testing, among other comments, states that they would like to see an unambiguous definition of water and that the following requirement should be included: "Water meter should keep the metrological parameters at its intended scope of use."

The Landesamt fuer Mess- und Eichwesen Rheinland-Pfalz (a German regional authority) supports the principle that water quality is defined.

Spain (CEM) notes that the proposal maintains harmonisation in this sector. They further note that in Spain "these instruments are especially relevant because the water is a precious commodity especially during periods of drought and there are about 4 million meters in Spain. For these meters, it is very useful to have the possibility of remote reading."

4.12.4 Key Arguments Rejecting the Proposal

The Dutch Ministry of Economy states that the present requirement on the level of accuracy is not acceptable to them and a possible solution may be the addition of an extra accuracy class (however, it is not clear whether the Dutch position refers to large scale water meter only or to irrigation meters too).

Greece (Ministry of Peripheral Development) states that there should be an investigation indicating whether "the cost of replacement of those instruments is more than the benefits" and states that the future OIML R49 could serve as a "normative document."

The most detailed responses were, however, provided by ***AQUA and VDDW*** which state that they are opposed to the proposal for the following reasons:

- "Irrigation water contains particles in suspension (silica, silt, various qualities of ground particles) different from one site to another in nature and size of the granules.
- Irrigation water is not potable water.

- The applications and specifications of water meters for the irrigation market are very different from country to country, and sometimes even within a country between the various river basin irrigation areas. That means that one solution/specification will not suit all market requirements.
- Out of the above reasons, the changes needed to MI-001 in order to make it suitable for the irrigation market requirements are so important that MI-001 would change its intended nature and raise costs involved for very limited or no benefit. Moreover, using the existing MI-001 without any change would favour specific technologies and as such, create inequalities on the market. It could also have the effect of favouring low performances meters for clean water applications, which would be in contradiction with MID essential requirement about suitability of the instrument for its intended use.
- Based upon the industry experience, the various operators of the irrigation market are using now the various existing national and international regulations, recommendations and standards. The present situation is not involving any barrier to trade."

These two organisations (***AQUA and VDDW***) also provide conclusions which relate to all non-clean water meter proposals (No 37-39) (please note that these conclusions are not reproduced again in subsequent sections dealing with waste water meters and large scale water meters):

- "MI-001 has been designed for clean water meters and is not suitable for irrigation water meters or for waste water meters. Introducing them into MI-001 would involve significant costs, favour specific technologies and could therefore create barriers to trade. According to RPA Irrigation, Waste water and Large water meters represent 1% of the value of the total market. Including them in MI-001 would cause very significant costs, much higher than the benefit we can expect.
- In the background document N°5 "Survey of SMEs on possible sectors for inclusion in the Measuring Instrument Directive", it is noted that "None of the respondents had their products withdrawn from the market due to a decision by a Member State under the Mutual Recognition Regulation."
- AQUA's and VDDW´s SME members support also the present Position Paper.
- On basis of the above listed reasons, specific to irrigation and waste water in particular, AQUA and VDDW oppose strongly to the introduction of Irrigation water meters and Waste water meters in the MI001. We can agree including Large water meters in MI001 provided they remains to be applied for the measurement of clean water only.
- We would like to favour this issue being treated through the Mutual Recognition Regulation."

4.13 No 38 Waste Water Meters

4.13.1 Summary of Proposal

The aim of this proposal is to extend the scope of the MID to cover waste water meters (as a part of an effort to include water meters measuring water other than clean water).

This is to be achieved by means of amending Annex MI-001. The full text of the proposal is not reproduced here. Please refer to Background Document 3 for more information.

It is possible, but unlikely, that some of these meters are currently covered by the old approach Directive 75/33/EEC.

4.13.2 Respondents and Prevailing Opinions

A total of 24 respondents provided their opinions on this proposal. These included 21 public authorities, two organisations and one notified body. 14 respondents (including eight German regional authorities) oppose the proposal while 10 respondents support it. Both organisations (***AQUA and VDDW***) are against the proposed amendment.

4.13.3 Key Arguments Supporting the Proposal

The Austrian authorities (BEV and Ministry of Economy), the Czech Office for Metrology, Standards and Testing and Estonia's Ministry of Economy provide the same comments as for the previous proposal (irrigation water meters). These are not reproduced here.

4.13.4 Key Arguments Rejecting the Proposal

The Dutch Ministry of Economy and the Greek Ministry of Peripheral Development provide the same comments as for the previous proposal (irrigation water meters)[19]. These are not reproduced here.

German regional authorities and the Ministry of Economy believe that waste water meters are not water meters per se and the current Annex MI-005 is applicable.

The most detailed responses were, however, provided by ***AQUA and VDDW*** which state that they are opposed to the proposal for the following reasons:

- "Waste water contains also particles in suspension but different from irrigation, and more difficult to describe and define.
- Waste water is not potable water.
- Waste water networks are generally made of partly filled pipes or canals. Measuring such water requires completely different technologies than the ones used for measuring clean water in fully filled pipes.
- Waste water is measured for process in B to B operations only, and never for consumer consumption measurements.
- We do not see any barrier to trade at this moment in time, existing solutions are convenient and practical for manufacturers and users.
- Requirements from existing MI-001 are not at all suited to waste water meters

[19] Again, it is not clear whether the comments of the Dutch Ministry of Economy relate to larger scale water meters only or to waste water meters as well.

- For the above reasons, adding waste water meters to MI-001 would raise more issues than it would solve. It would cause spending of time and money for a very limited result."

Please also refer to previous section on irrigation meters as some AQUA and VDDW comments relate to both irrigation and waste water meters.

4.14 No 39 Large-scale Water Meters

4.14.1 Summary of Proposal

The aim of this proposal is to extend the scope of the MID to cover large-scale water meters. This is to be achieved by means of amending Annex MI-001. Please refer to Background Document 3 for the full text of the proposal.

Some types of large scale water meters appear to be currently covered by the old approach Directive 75/33/EEC.

4.14.2 Respondents and Prevailing Opinions

A total of 26 respondents provided their opinions on this proposal. These included 23 public authorities, two organisations and one notified body. 22 respondents (including eight German regional authorities) support the proposal (fully or with conditions) and 8 respondents oppose it. Both organisations (***AQUA and VDDW***) are would support the inclusion of large scale water meters in MI-001 provided they "remain to be applied for the measurement of clean water only."

4.14.3 Key Arguments Supporting the Proposal

The Austrian authorities (BEV and Ministry of Economy), the Czech Office for Metrology, Standards and Testing and Estonia's Ministry of Economy provide the same comments as for the previous two proposals (irrigation and waste water meters). These are not reproduced here.

Denmark (DSTA) notes that the proposal, if adopted, would reduce technical barriers to trade (however, detailed information on existing barriers is not given).

The most detailed responses were, however, provided by ***AQUA and VDDW*** which state the following:

- "They are used in B to B operations for clean water and represent low annual quantities.
- MI-001 applies to "water meters for residential, commercial and light industrial uses" without stating any limitation of size.
- Including large scale water meters can be an extension of the present scope, if and only if it remains to be applied for measurement of clean water.
- Costs increases will be limited for also limited benefits.

- There is no need for changes of standards."

4.14.4 Key Arguments Rejecting the Proposal

The Greek Ministry of Peripheral Development provides the same comments as for the previous proposal (irrigation water meters). These are not reproduced here.

The Dutch Ministry of Economy states that the present requirement on the level of accuracy is not acceptable to them and a possible solution may be the addition of an extra accuracy class. It is further stated that "at the moment large water meters are used to determine the level of tax on the extraction of underground water. The accuracy of the meter should be in line with the amount to be measured and the costs involved. We are talking about an amount of millions of m3 and in that case a deviation of 10% in the measuring results is acceptable."

The UK's NMO states that they cannot support the proposal "as it is out of step with the proposal in relation to large scale gas/electricity meters which are already outside the scope of MID."

4.15 No 40 Alcoholmeters

4.15.1 Summary of Proposal

This proposal aims to extend the MID to cover alcohol meters and alcohol hydro meters which are used for the determination of the alcohol strength of mixtures of water and ethanol, mainly for tax purposes. This would require the amendment of Article 1 to include these instruments in the list of those covered by the Directive and the addition of an instrument specific annex.

Please refer to Background Document 3 for the full text of the proposal.

4.15.2 Respondents and Prevailing Opinions

A total of 24 respondents provided their views on the proposal. These include 17 public authorities, five organisations, one company and one notified body. 18 respondents are in favour of the proposal (either unconditionally or in principle) while six respondents oppose the proposal.

4.15.3 Key Arguments Supporting the Proposal

The ***European Spirits Organisation (CEPS)*** and the ***Scotch Whisky Association (SWA)*** note that the inclusion of these instruments into the MID would "ensure operators are able to choose the most suitable instrument and not limit their operational choice."

BEV (Austria) appreciates the continuity with existing requirements. Austria's Ministry of Economy notes that the proposal would contribute to a free trade with these

instruments. Both Austrian respondents note that the proposal would enable a repeal of the old approach Directive.

The Czech Customs Administration states that the proposal is "significant for the control of ethanol management and the administration of excise duties on alcohol. The original Directive n° 76/765/EEC (concerning alcoholmeters and alcohol hydrometers) is proposed to be repealed." The Czech Office for Metrology, Standards and Testing states that this proposal is supported as the highest priority and requests that it also includes a the formula for the determination of alcoholic strength. It is further stated that this is "significant for the control of ethanol management and the administration of excise duties on alcohol. The formula (alcohol tables) applies for correct calculation of alcoholic strength on the basis of measured values by means of instruments covered by the annex. It is an essential complement to the annex on alcoholmeters to avoid a risk of ambiguity or dispute. The old approach directives n° 76/765/EEC and 76/766/EEC are intended to be repealed; standards and/or guidance are not sufficient as these are not binding."

Denmark (DSTA) and Greece (Ministry for Peripheral Development) suggest that the proposal could lead to reduced trade barriers.

Estonia's Ministry of Economy notes that while supporting the proposal "Estonia has national regulation on alcohol meters and alcohol tables in the case of measurements prescribed in customs and taxation. National regulation encompassing technological progress is based on relevant OIML normative documents and/or international standards; there is no technical barrier to trade."

Germany's Ministry of Economy agrees in principle but calls for further examination of the terms used in the proposal.

Ireland (NSAI) notes that they "can accept a new annex for these instruments but the alternative solution of reference to international standard specifications is also acceptable."

4.15.4 Key Arguments Rejecting the Proposal

A company (***SATAM***) and ***Syndicat de la Mesure*** state that "the described instruments are measuring a characteristic of the liquid (alcohol strength of mixtures of water and ethanol). Transactions and tax are relative to another quantity: a volume or a mass of pure ethanol contained in that mixture which is related to Annex MI-005." No further explanation of this issue is given.

CEEV (the Comite Europeen des Enterprises Vin) states that Proposal 40 should not apply to wines and wine products as "there is no need to regulate what is already regulated: instruments to measure alcoholic strength are strictly regulated for wine and wine products as defined by Annex XI of Regulation 1234/2007" together with the OIV Compendium of International Methods of Analysis of Wines and Musts and Commission Regulation 606/09.

The ***Brewers of Europe*** suggest that the proposal goes against the Better Regulation policy in that it "would make it difficult to harvest the benefits from developments in analytical chemistry and instrumentation." It is further stated that "the current system -

freedom in methods combined with measures for assuring the quality in the analytical work in the laboratories - is satisfactory."

The UK (NMO) notes that "the need for these instruments to have separate provisions has been overtaken by later standards and other harmonised requirements since the original "old approach" directives were introduced."

4.16 No 41 Weights

4.16.1 Summary of Proposal

Presently, medium and above medium accuracy weights are covered by old approach Directives 71/317/EEC and 74/148/EEC; however, these Directives may be repealed in the future. This proposal aims to include these weights into the scope of the MID based on OIML R-111.

Please refer to Background Document 3 for the full text of the proposal.

4.16.2 Respondents and Prevailing Opinions

A total of 21 respondents provided their views on the proposal. These included 17 public authorities, two organisations, one company and one notified body. All but four respondents support the proposal, either unconditionally or in principle.

4.16.3 Key Arguments Supporting the Proposal

Austria (BEV) states that "as there is a direct impact in commerce and trade it is necessary that the manufacturing of weights is regulated. By adding the annex on weights in the MID the Directives on weights 71/317/EEC and 74/148/EEC can be repealed."

The Czech Office of Metrology, Standards and Testing simply states that "both types of weights are used for commercial purposes and for calibration."

Denmark (DSTA), ***CECIP*** and one company (***DELTA***) state that the proposal will reduce trade barriers. ***CECIP and VDMA*** further note that standardisation and normative documents are not sufficient to provide a clear framework for these instruments."

The Dutch Ministry of Economy states that "they could accept an annex on weights but prefer in that case an annex more in line with the new approach principle. The [current] proposal […] is very detailed and therefore more in line with the old approach system."

4.16.4 Key Arguments Rejecting the Proposal

Estonia (Ministry of Economy) notes that "the old approach directives 74/148/EEC and 71/317/EEC have no practical value and in view of Estonia- should be repealed. […] The existing OIML R 111-1:2004 is fully sufficient for weights of all accuracy classes placed on the market, put into use or in use".

Greece (Ministry of Peripheral Development) states that they have no strong preference in relation to this proposal since weights are hardly used nowadays. It is stated that OIML R111 could serve as a normative document.

Ireland (NSAI) would prefer that only those weights used for trade purposes are regulated.

4.17 No 42 Tyre Pressure Gauges

4.17.1 Summary of Proposal

The proposal is to include tyre pressure gauges (instrument to measure the pressure of motor vehicle tyres) into the scope of the MID. This would require the amendment of Article 1 to include these instruments in the list of those covered by the Directive and the addition of an instrument specific annex introducing two instrument classes, one corresponding to the old approach instruments and the other one for the new instruments foreseen in standardisation mandate M/457.

Please refer to Background Document 3 for the full text of the proposal.

4.17.2 Respondents and Prevailing Opinions

A total of 22 respondents provided their views. These include 21 public authorities and one notified body. All respondents, with the exception of Sweden (SWEDAC) were in favour of the proposal (either fully or in principle).

4.17.3 Key Arguments Supporting the Proposal

Austria (BEV) supports the proposal as it would enable free movement of products and continuity of legal requirements with the old approach Directive. It is further requested to consider the "operational conditions for different applications including mechanical class M3 in addition to M2 and requirements regarding other environmental conditions (humidity, water, salt mist, sand and dust) have to be taken into account, if sensors are applied on the wheel. MPE 0.06 bar for Class II instruments could lead to practical problems when the required scale division of 0.05 bar is applied."

The Czech Office of Metrology, Standards and Testing simply states that these instruments are "important from the view of road traffic and public safety." In addition, the Czech Republic suggests that the proposal should use SI units.

The Estonian Ministry of Economy notes that "currently Estonia has national regulation on tire pressure gauges for motor vehicles if they are used for adaption of taximeter and recording equipment (tachograph) in road transport to the vehicle or used during police organized inspection and traffic surveillance. National regulation encompassing technological progress based on relevant OIML normative documents and/or international standards; there is no technical barrier to trade."

The German Ministry of Economy agrees in principle but calls for further examination of the suitability of the MPEs. Also according to Spain (CEM), the maximum errors allowed for Class 1 should be adjusted based on the international standard ISO 21750, and MPEs for Class 2 are slightly different from those in Directive 86/217/EEC, which means that manufacturers that already have a type approval under the previous rules would not benefit from the proposal.

Greece (Ministry of Peripheral Development) states that the proposal would contribute to reducing trade barriers (no further information on these are provided).

The UK (TSI) states that "the use of traditional mechanical tyre pressure gauges is becoming less commonplace in the United Kingdom. Such equipment is increasingly being replaced by more modern digital and pre-set digital tyre pressure gauges. It is not clear in the proposals relating to Definitions why a distinction is drawn between the terms "tyre pressure meters" and "tyre pressure gauges". For the sake of clarity, uniformity and consistency the same terminology should be used throughout the proposals. Therefore consistent use should either be made of the term "tyre pressure gauge" or "tyre pressure meter", rather than using both terms interchangeably."

4.17.4 Key Arguments Rejecting the Proposal

Sweden (SWEDAC) provides no explanation for their rejection of the proposal.

4.18 No 43 Mass of Grain

4.18.1 Summary of Proposal

The proposal aims to extend the MID to include instruments used for the determination of standard mass of grain in the field of agriculture for transaction or tax reimbursement purposes. This will involve the amendment of Article 1 to include such instruments in the list of those covered by the MID as well as the addition of a supplementary annex. Please refer to Background Document 3 for the full text of the proposal.

These instruments are currently covered by the old approach Directive 71/347/EEC.

4.18.2 Respondents and Prevailing Opinions

A total of 22 respondents provide their views on the proposal for standard mass of grain. Of the respondents, 19 are in favour of the proposal (either unconditionally or in principle) whilst three are against. All the respondents except one notified body are public authorities.

4.18.3 Key Arguments Supporting the Proposal

The BEV (Austria) supports the new annex. It notes that Directive 71/347/EEC regulates the common standard for the EU. For this reason and to provide continuity in legal certainty, the directive cannot be replaced by a standard. The old approach directive can

be repealed once the new annex enters into force. The Austrian Ministry of Economy supports the proposal so that legal certainty is maintained but notes that to that end the annex still has to be adapted. After that, the old approach Directive can be repealed.

The German Ministry of Economy and regional authorities agree in principle but request a number of amendments; these are, however, not reproduced here. German regional authorities and the Bureau de la Metrologie (France) all agree with the inclusion of the annex in the MID and make no further comments.

The Czech Office for Standards, Metrology and Testing thinks that the annex should be included and provides the following comments:

- DG AGRI regulations should be taken into account since they are related above all to EU interventions and support in the field of agriculture; and
- all measuring instruments regardless of their field of application should be kept in the scope of metrology and metrology legislation.

The Office additionally comments that the MPE set in ISO 7971-2:2009 should be used, because the MPE of 0.5 kg/hl is too high. The MPE for in-service verification according to ISO would be lower than 0.5 kg/hl. Point 2.1 of the new annex should be in accordance with point 6.4 of ISO 7971- 2:2009 that is also referred to in point 7.3.4 of ISO.

The Ministry of Peripheral Development (Greece) comments that the annex should be added since this would reduce barriers to trade (however, no details on these are given), allow adaptation to technological development, and prevent there being differences in legislation between Member States. It also states that including the annex would lead to free circulation and lower costs for manufacturers when obtaining approvals. Adding the instruments to the MID would additionally enable Directive 71/349/EEC to be repealed.

The Kaunas Metrology Centre (Lithuania) agrees with the proposals and states that all changes in Annex 4 are important for legal metrology. The State Metrology Service (Lithuania) also agrees with the proposals, commenting that the changes are important for better regulation of legal metrology.

The Ministry of Economy of Estonia supports adding measuring instruments for standard mass of grain into the scope of the MID. Currently, Estonia has national regulation on corresponding non-automatic weights in the case of measurements prescribed in customs and taxation. National regulation encompasses technological progress based on relevant OIML normative documents and/or international standards; there is no technical barrier to trade.

The notified body, LNE, supports the addition of the annex to the MID. However, it notes that the draft annexes were made following a tight schedule, thus it feels it is necessary for the text to be reviewed by each stakeholder.

4.18.4 Key Arguments Rejecting the Proposal

The Ministry of Economy of the Netherlands disagrees with the proposal, stating that more modern methods are used to determine the relevant elements necessary for transaction or tax purposes.

The National Measurement Office in the UK notes that the proposal refers to instruments used for the determination of standard mass of grain in the field of agriculture for transaction of tax reimbursement purposes. It does not see a continuing need for such instruments to be harmonised.

SWEDAC (Sweden) is not in favour of the adding such instruments to the MID.

4.19 No 44 Ships' Tanks

4.19.1 Summary of Proposal

The proposal aims to incorporate ships' tanks within the MID. This will involve amending Article 1 to include ships' tanks in the list of instruments covered by the MID, as well as the addition of a supplementary annex. Please refer to Background Document 3 for the full text of the proposal.

These instruments are currently covered by the old approach Directive 71/349/EEC.

4.19.2 Respondents and Prevailing Opinions

A total of 16 respondents provide their views. Of these, 12 respondents are in favour of inclusion (either unconditionally or in principle) whilst three are against. One respondent is neither for nor against. It should be noted that with the exception of one notified body, all the respondents are public authorities.

4.19.3 Key Arguments Supporting the Proposal

The Austrian BEV notes that the proposed Annex provides continuity in legal certainty, and the old approach directive can be repealed once the new annex is in force. The Austrian Ministry of Economy comments that the annex carries forwards the EU requirements which are already in place.

The Dutch Ministry of Economy remarks that the vast majority of ship tanks in the country are calibrated according to Directive 71/349/EEC, with an average of 100 – 150 certificates issued each year. Calibration is seen as an independent way of determining the ship's load which is important for safety (in relation to stability of the ship) and fair trade (with regard to the settlement of disputes).

The Ministry of Peripheral Development in Greece comments that European level regulation will prevent there being differences in legislation at the national level. It will also mean that it costs less for manufacturers to obtain approvals and there will be free

circulation. In addition, by adding these instruments to MID, Directive 71/349/EEC can be repealed.

The Kaunas Metrology Centre (Lithuania), the State Metrology Service in Lithuania, the Bureau de la Métrologie in France, the Norwegian Metrology Service and the Mess und Eichwesen Baden–Wuerttemberg (a regional authority in Germany) all agree with the proposal to add ship tanks to the MID. None of these respondents provide any reasons for their support.

The Ministry of Economy of Estonia supports adding ships' tanks into the scope of MID. Currently Estonia regulates ships' tanks at the national level according to measurements prescribed in customs and taxation legislation. National regulation takes into account technological progress and is based on relevant OIML documents and/or international standards. Thus there is no barrier to trade.

The Legal Metrology Service in Ireland notes that there are currently no requirements to have ships tanks calibrated for Irish waters. However Irish ships operating in other territories have to observe calibration requirements.

The one notified body (LNE) also supports the inclusion of ships' tanks, but notes that the actual content of the annex needs reviewing since the proposals were drafted according to a tight time schedule.

The Czech Office for Standards, Metrology and Testing comments that the issue is irrelevant for the Czech Republic.

4.19.4 Key Arguments Rejecting the Proposal

Eichdirektion Nord (a regional authority in Germany) does not agree with the proposal. It notes that ships' tanks include fuel and storage tanks on ships and the issue is not only the ships' calibration which includes measuring of the draft in relation to the ship load. There should be a clear differentiation between the requirements on ships' tanks (tables relating to the fill level and the correction for tilting error) and on the measurement of the storage volume (fill level). There should be requirements on the measurement and use. Automatic fill level measurement instruments should be subject to an approval process and to a conformity assessment according to Article 9. The restriction to D1, F1, G or H is not advisable as combinations of B+D, B+F, H1 can also be used. Based on their experience, the given MPEs are too low.

The National Measurement Office (UK) does not see a continuing need for ships' tanks to be harmonised.

SWEDAC (Sweden) is not in favour of adding ships' tanks to the MID.

Annex:

Commission Staff Working Document on the review of the Measuring Instruments Directive 2004/22/EC

EUROPEAN COMMISSION

Brussels, 23.08.2010
SEC(2010) xxx

COMMISSION STAFF WORKING DOCUMENT

on the review of the Measuring Instruments Directive 2004/22/EC

COMMISSION STAFF WORKING DOCUMENT

on the review of the Measuring Instruments Directive 2004/22/EC

A. Introduction

1. Purpose of this document

The purpose of this document is to give an overview of the evaluation of the Measuring Instruments Directive, of any issues at hand which result from the evaluation and of any proposal for changes, be it to the provisions of the current directive or adding new sectors. The aim of the consultation is to take in responses from all interested parties notably on impacts, costs and benefits.

Making this document available is in the interest of transparency and the public exchange of views and is in line with the requirements of the Commission's better regulation policy.

In no way is the Commission or its services bound by any statement or proposal in this document, its annexes or the background documents.

2. Measuring Instruments Directive (MID)

The Measuring Instruments Directive (Directive 2004/22/EC[1]) has been in operation since 30 October 2006[2]. Instruments that conform to the Directive are CE and M marked and profit from free circulation on the EU internal market. Member States may only require that instruments conforming with the Directive be used for tasks requiring legal metrological control in their territory[3].

It applies to the following instruments defined in the Annexes to the directive:

- water meters;
- gas meters and volume conversion devices;
- active electrical energy meters;
- heat meters;
- measuring systems for continuous and dynamic measurement of quantities of liquids other then water;
- automatic weighing instruments;
- taximeters;
- material measures;
- dimensional measuring instruments;
- exhaust gas analysers.

The main policy objective of the Directive is to facilitate and enhance the internal market for instruments required for measuring tasks for reasons of public interest, public health, public

[1] OJ L 135, 30.4.2004, p. 1: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2004L0022:20091201:en:PDF

[2] The directive also contains a transition period of 10 years (until 29 October 2016) during which instruments conforming to old rules are allowed to continue to be marketed (Article 23 of Directive 2004/22/EC)

[3] See for more information: http://ec.europa.eu/enterprise/sectors/legal-metrology-and-prepack/measuring-instruments/index_en.htm

safety, public order, protection of the environment, protection of consumers, levying of taxes and duties and fair trading, where Member States consider it justified..

MID guarantees a high level of confidence through essential requirements which are applicable in all Member States and is expressed by means of CE and M marking. It defines performance criteria, while giving manufacturers technological flexibility on ways of meeting them. MID offers a wide choice of conformity assessment procedures that cater for the needs of small and large producers alike.

The legislation does not define for which activities the measuring instruments need to be used. That remains a matter for national governments. For instance, practices differ between Member States on whether meters are required for water consumption or common heating systems. Similarly, factories may use many different types of meters for internal production purposes which do not need to be regulated.

However, where a formal legal measurement is required by a Member State, as in the vast majority of consumer transactions, then only items which comply with the Directive can be used. The Directive distinguishes categories to take account of the huge disparity of temperatures in Europe where measuring instruments placed outside need to remain accurate at - 40 degrees in a Scandinavian winter and + 70 degrees in a Mediterranean summer.

The Directive allows to reference international standards that may be used alongside European ones to demonstrate compliance with the legislative requirements. Relying on the work of the 60-country strong Organisation Internationale de la Métrologie Légale (OIML), for instance, helps European industry to be more competitive and penetrate global markets.

The unit responsible for the MID is DG enterprise and Industry, Unit I/5.

3. Reasons for the review

In Article 25 of the Measuring Instruments Directive[4] the Commission is invited to report on the implementation of the Directive as follows: "The European Parliament and the Council invite the Commission to report, before 30 April 2011, on the implementation of this Directive, inter alia, on the basis of reports provided by the Member States, and, where appropriate, to submit a proposal for amendments. The European Parliament and Council invite the Commission to evaluate whether conformity assessment procedures for industrial products are properly applied and, where appropriate, to propose amendments in order to ensure consistent certification."

The revision clause was proposed by European Parliament and was motivated according to its second reading report[5] by its profound concerns about:

- technological innovation being hampered by requirements in the Directive which according to one piece of advice received by Parliament would already become apparent within a period of 5 years;
- optionality of the Directive leading to a dual (two-tier) market with unmarked instruments unfairly competing on the internal market with those that are properly marked and conform with the high-level requirements of Directive (recital 6);

[4] OJ L 135/1, 30.4.2004

[5] G.B. Chichester: ITRE Recommendation for second reading on the Council common position adopting a directive on measuring instruments, 2000/0233 (COD), A5-0458/2003 of 3 December 2003: http://www.europarl.europa.eu/sides/getDoc.do?pubRef=-//EP//NONSGML+REPORT+A5-2003-0458+0+DOC+PDF+V0//EN

- unequal treatment of consumers/users in different Member States because of optionality, which should be seen as a temporary measure and ideally should be phased out 5 years after the start of implementation. Therefore Member States are required to report why they deviate from the general rule of requiring legal metrological control (second para of Article 2);
- non-Member State stakeholders not being able to fully participate in comitology decision making in the measurement instruments committee (recital 23);
- conformity assessment procedures differing considerably from the 1993 Decision formats for conformity assessment modules which Council had requested to actualise in 2003 (second paragraph of Article 25).

Council and Commission[6] accepted the 5 year revision clause without endorsing notably the first three above-mentioned motivations expressed by the European Parliament and agreed in a tri-partite declaration on updating conformity assessment procedures once these had been agreed, as has happened in the new 2008 Decision on the New Legal Framework[7].

For the Commission services the first priority for the report on the implementation of the Directive is assessing whether any of the above-expressed fears have materialised.

Given the Competitiveness and Innovation Framework programme and with the aim of achieving a more SME-friendly regulatory environment, the second priority is analysing the views of small and medium size enterprises (SME). To this end the Commission services have solicited opinions from SMEs via the Enterprise Europe Network.

The third priority is the implementation of the Directive on other points, taking due account of the fact that the Directive as been applicable for less than 4 years, namely since 30 October 2006. A related question is whether the 10 year transition period up till 2016 may have retarded application of the Directive in the market place because there was no need to produce according to the Directive.

Fourth priority is to assess whether any other categories could benefit from being included in the scope of the Measuring Instruments Directive. Of prime importance is to indicate reasons such as trade barriers that hamper the internal market. This request also applies to the instruments for which the Commission has proposed to repeal existing harmonisation under Old Approach Directives in its proposal COM(2008)801[8].

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[6] Opinion of the Commission on EUROPEAN PARLIAMENT amendments to the Councils common position on the directive on measuring instruments, 200/0233(COD), COM(2004)40 of 26.01.2004: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2004:0040:FIN:FR:PDF

[7] Decision N° 768/2008/EC, OJ L218/82 of 13.08.2008

[8] OJ C/2010/76/ 8 and http://ec.europa.eu/prelex/detail_dossier_real.cfm?CL=en&DosId=197702
See for supporting documents:
http://ec.europa.eu/enterprise/sectors/legal-metrology-and-prepack/documents/framework-directive/index_en.htm

B. Evaluation

1. Evaluation study by CSES[9]

1.1. Objectives and methodology

The objectives of the interim evaluation of the Measuring Instruments Directive (MID), conducted by CSES during the period 11/2009-06/2010, were to provide ballpark market estimates for each sector covered by MID, to review the effectiveness of the Directive and to make recommendations. The evaluation findings are based on a review of relevant documents, analysis of market data from public and private sources, interviews with a total of 91 stakeholders and two surveys of notified bodies and SMEs.

1.2. Market of legal metrology instruments covered by the MID

It is estimated that the MID applies to around 345 million units of MIs sold annually in the European market with a total sales value of around €3.25 billion. There are around 900 manufacturers active in the 10 sectors covered by the MID not including the large number of SMEs operating as distributors, importers or providers of repair services. The total number of employees occupied in the sector is estimated at 175,000- 205,000.

1.3. Main conclusions

- The MID has helped improve the operation of the internal market with the use of a single conformity assessment certificate and represents a significant improvement in relation to the pre-MID period. Still, problems are present mainly due to the poor quality of market surveillance in most MSs, national requirements concerning functionality and specific issues related to the use of the subassembly approach for automatic weighing instruments and fuel dispensers.
- As a result of the use of a single certificate the cost savings from the introduction of the MID exceed the moderate increase of certification and other administrative fees reported. These savings help firms with presence in multiple markets. Firms focused on national market may face slightly higher administrative costs.
- There appear to be inconsistencies among the notified bodies in the interpretation of essential requirements and WELMEC[10] guidance documents and, more general, the 140 bodies have varying levels of capacity. This leads to important variation in the experience of manufacturers during the certification process.
- There is no evidence that the implementation of the MID has generally put SMEs in disadvantaged position against larger companies. However, in the case of weighing instruments and fuel dispenses the industry representatives suggest that the absence of a subassembly approach can disadvantage SMEs that produce MIs' components.
- The MID is in general a technologically neutral directive that allows for a level playing field. The main issue is the rather restrictive use by notified bodies of the guidelines of WELMEC posing constraints in using alternative approaches to conform to the essential requirements.
- There is also no evidence that the Directive has had a negative impact to the level of consumer protection either due to the essential requirements or due to the use of optionality.

[9] CSES are external contractors, in full "Centre for Strategic & Evaluation Services"

[10] WELMEC, is the organisation of national authorities in legal metrology at which meetings some stakeholders participate.

- The optionality clause in Article 2 of the MID has been used by a total of 17 countries for at least one MI although still 90% of instruments are regulated. There is no evidence linking optionality with unfair competition or development of two tier markets. Two tier markets do exist, although they are not due to optionality, but to the fact the MIs are used for both legal metrology purposes, and other uses such as process control not covered by the Directive.
- The MID decision-making procedures have been open to all interested stakeholders and there is no evidence of interested parties being excluded or not having the opportunity to raise relevant issues.

1.4. Recommendations

The utility and effectiveness of the Directive could be improved by the following actions:

- Development and implementation of market surveillance plans by MSs in accordance to the New Legislative Framework. The Commission can help in the sharing of the results and of experience among the relevant bodies through the organisation of targeted discussion groups
- Strengthen quality of notified bodies and enhance consistency by information sharing and training support concerning the application of conformity tests, the interpretation of the essential requirements and the use of WELMEC guidance documents.
- Enhance information exchange among competent authorities concerning instruments certified or rejected through the extension of existing national databases of type certificates
- Organise information campaign to increase the level of awareness of the Directive by manufactures and importers
- Use existing representation bodies, including WELMEC, to identify and promote solution to specific technical issues identified by stakeholders including the combination of old and new components for liquid dispensers other than water (MI-005).

See for the full CSES report, background document 1.

2. Views by Small and Micro enterprises

A survey was carried out by the Commission services using the SME panel consultation tool of the Enterprise Europe Network. The survey was opened on 30 September 2009 and closed on 5 December 2009. It attracted a total of 286 responses, 55% being manufacturer, installer, importer or distributor and 45% being user. The respondents of the survey were primarily small enterprises of less than 50 employees (over 80%) with over 50% being micro enterprises of less than 10 employees. In terms of sales the majority (63%) stated total turnover of less than €10million although 34% did not provide any data. In terms of the country of origin, the sample provided a wide coverage of EU countries but there is a notable absence of Netherlands and the United Kingdom. In terms of the types of measuring instruments covered, all sectors of MIs were represented and for the great majority of the companies in the sample (around 78%), the measuring instrument they traded had a CE+M marking which indicates that the instrument is in conformity with the MID. The responding SMEs traded in all 27 EU member states with France, Germany and Spain stated by more than 20% of the respondents. Around 19% stated presence in more than 5 EU countries while, in contrast, 23% sold in only one – usually the domestic - market. In terms of exports outside EU, around 40% stated that they sold their products outside the EU market (against 42% not), primarily in other countries of South and Eastern Europe (56%) but also around 35% to non-EU Mediterranean countries, Africa, Asia and North America.

Main findings by the survey as interpreted by CSES were:

- Concerning conformity assessment, all modules were used by the 80 SMEs that responded, modules B and D are the most common (44% and 52% respectively) while modules A, G, F, and H were less often stated.
- Over 80% of the 118 manufactures and importers were positive or very positive concerning the adequacy of the conformity assessment modules.
- When asked for specific comments and suggestions for improving the conformity assessment SMEs referred to the need to relax the assessment procedures for the very inexpensive MIs and suggestions in connection with sub-assemblies not recognised as such in the Directive.
- a small number of companies made reference to barriers posed by national authorities that do not allow them to enter other markets. The complaints concerned mainly – but not exclusively - new member states but there was no specific category of MI identified. The consultation should make such issues clear.
- The survey also asked SMEs users of MIs to assess whether the current legal metrology regime provides sufficient protection. The majority of the responses were positive (60%) with only a small share (20%) suggesting problems in terms of consumer protection. This again is unclear and should clarified in the public consultation
- On the question whether there are unmarked products competing with CE and M marked instruments, the answers suggest that there is indeed a significant presence of MI instruments circulating without CE+M marking as close to 60% of the total respondents made such reference and one third did not consider that the products created unfair competition whilst two-thirds thought otherwise. The public consultation should clarify whether this concerns products that are not under the transition and in what way they compete with MID products The differences between the responses of users and manufactures were rather small although a greater share of users thought that the non-CE+M marked products were competing unfairly.

See for further details the CSES report, background document 1, pp 35-40.

C. Suggestions for changes to the Directive

Member States and stakeholders participating in the Working Group on Measuring Instruments which advises the Commission services on the questions concerning the MID were asked for suggestions for possible changes to the MID. A fairly large number of suggestions were made and they were prioritised by working groups of WELMEC, the organisation of national authorities in legal metrology at meetings in which some stakeholders also participate.

A majority of Member States (or a substantial minority) and some of the involved stakeholders is in favour to discuss each of the suggested changes with a view to effectuating a change in the current wording of the Directive. The suggested texts are still under discussion and wordings are not definite. The 26 suggestions for text changes are listed in Annex 3 and details are available in Background Document 2.

By referring to these suggestions in this document, the Commission services do not endorse any of the suggested changes nor does their publication in any way commit the Commission or its services. The Commission reserves its position on the outcome of the Public Consultation and the impact assessment process. Given the support registered for each of the suggested changes they are bound to come up in discussions. Therefore the Public Consultation is the opportunity to get the full range of views from all interested parties, notably those who may have not participated fully in the preparation of the text changes.

On the other hand, however, Commission is sensitive to the risk of changing the MID after less than 4 years of functioning. The possibilities of standardisation and guidance have not been fully used during the short period of the full application of the directive. Changing the directive at such an early stage could lead to regulatory drift and to uncertainty in the market place. For these reasons, the Commission and its services will need to comply fully with impact assessment as required by the Commission's Smart Regulation Policy. Given the technicality of many of the changes, the Commission can only consider those for which the Public Consultation gives sufficient information upon which to base impact assessment, notably also the existence of identifiable barriers to trade (see Annex 2 on mutual recognition). Until now no procedures under the Mutual Recognition Regulation have been opened for any of the issues mentioned in annex 3.

Stakeholders are requested to very clearly make the case whether they are in favour or against proposals and to carefully motivate their considerations with due attention to impacts.

See as an example the Annex 1: Standardisation in the case of smart metering.

The suggestions for changes in detail are available in background document 2.

D. Adding new sectors to MID?

There have been a number of suggestions by Member States and some stakeholders to include new sectors as annexes in the MID. There is also some interest among Commission services in 2 cases[11]. In all, 18 candidates have been suggested for inclusion in MID and they are listed in Annex 4 from where references are made to further information in Background documents 3 and 4.

1. Options for adding new sectors to MID:

Broadly three options for analysis can be distinguished:

Option 1: Do nothing (baseline)
Option 2: Co-Regulation (via standards or guidance)
Option 3: Harmonisation

a) Option 1: Baseline

The baseline option encompasses three possible sub-options:

- ***Option 1a:*** no regulation or national standards;
- ***Option 1b:*** national regulation/standards; and
- ***Option 1c:*** international/European standards.

It is, of course, quite possible for the baseline (for individual instrument sectors) to vary from Member State to Member State and this will need to be accounted for in the analysis. Since 2009 the Mutual Recognition Regulation has been in force and it offers significant improvements notably as regards the procedures to follow in the case of a product not being given automatic entry. These procedures allow establishing the occurrence of trade barriers in the internal market in an objective way, see for details Annex 2. This means that the number of procedures that have been opened against products in a sector give an indication of the severity of trade barriers on the internal market. Corollary is that if there are no procedures, trade barriers cannot be assumed. Until now no procedures under the Mutual Recognition Regulation have been opened for any of the sectors mentioned in annex 4.

b) Option 2: Co-Regulation (via standards or guidance)

The co-regulation option encompasses two possible sub-options:

- ***Option 2a: EU Standardisation:*** European standardisation based on international standards by means of mandates to European Standardisation Organisations.
- ***Option 2b: Extending guidance:*** Extending guidance (through actions by Member States, possibly with Commission support) on existing requirements based on commonly agreed interpretations (such as international standards).

Under both these options Member States must base national laws on international standards (WTO/TBT obligations) and apply the principles of mutual recognition – as outlined above under Option 1.

[11] Electrical vehicle chargers and Energy measurement system for use on board railway vehicles

c) Option 3: Harmonisation

The harmonisation option encompasses three possible sub-options:

- ***Option 3a:*** adding the technical annex to the MID defining sector specific essential requirements based upon international standards (WTO/TBT obligation);
- ***Option 3b:*** in the absence of international standards, adding the technical annex to the MID defining sector specific essential requirements based upon European standards; and
- ***Option 3c:*** in the absence of both European and international standards, adding the technical annex to the MID defining sector specific essential requirements.

3. Views by Small and Micro enterprises

A second survey was carried out by the Commission services using the SME panel consultation tool of the Enterprise Europe Network. The survey was held from 21 May 2010 to 30 June 2010.

Across the EU 298 companies replied to the survey. The majority of respondents (more than 60%) are users of measuring instruments, manufacturers represent less than 25% and the remainder are distributors, installers or importers.

None of the respondents had their products withdrawn from the market due to a decision by a Member State under the Mutual Recognition Regulation.

Approximately half of the respondents did not experience any barriers to trade. For those who experienced barriers, the associated costs rarely exceeded 25% of the company's turnover and for many companies amounted to less than 10%.

Over half of the users (55%) identified a need for more legal metrological control.

Most of the respondents were in favour of a manufacturer declaration and half of them identified the need for involvement of the notified body.

Further details per sector as interpreted by RPA[12] are available in Background document 5.

[12] RPA are external consulatants : "Risk and Policy Analysis"

E. Request to all interested parties for their reactions

Based on the analysis presented in this report and its annexes, stakeholders are invited to answer the following questions:

1. Are there any issues not flagged in the evaluation report which should nonetheless be included?

2. Do you have comments on the evaluation report and the CSES recommendations? Please mention examples of real cases where possible.

3. Which of the changes listed in Annex 3 should be made to the MID and why?

Please identify in particular:

a) Any barriers to trade experienced (see also Annex 2 on the Mutual Recognition Regulation)

b) Any need to adapt to technological development and/or risk that harmonisation would hinder it

c) The EU policies to be supported

d) Other reasons supporting the need for the change

e) The expected costs and benefits of the change, e.g. compliance costs will be raised by x% of turnover and there are resulting benefits of y% of turnover as compared with the costs incurred under a 'no change' option.

f) Why standards and/or guidance are not sufficient as alternatives to harmonisation?

4. Which of the 26 suggestions identified in Annex 3 for changes to the MID do you oppose and why? In relevant cases, why do you consider standardisation and/or guidance as better alternatives to harmonisation?

5. Which of the sectors identified in Annex 4 should be added to the MID and why?

Please identify in particular:

a) Any barriers to trade experienced (see also Annex 2 on the Mutual Recognition Regulation)

b) Any need to adapt to technological development and/or risk that harmonisation would hinder it

c) The Union policies to be supported

d) Other reasons supporting the inclusion of a sector

e) The expected costs and benefits of the change, e.g. compliance costs will be raised by x% of turnover and there are resulting benefits of y% of turnover as compared with the costs incurred under a 'no change' option.

f) Why standards and/or guidance are not sufficient as alternatives to harmonisation?

6. Which of the sectors identified in Annex 4 should not be added to the MID and why? In relevant cases, why do you consider standardisation and/or guidance as better alternatives to harmonisation?

The Public Consultation is open to all interested parties in the broadest sense: manufacturers, distributors, importers, consumers, users, federations, authorities, potential notified bodies.

The public consultation will be open from 6 September 2010 to 1 November 2010.

Received contributions, together with the identity of the contributor, will be published on the Internet, unless the contributor objects to the publication of his/her personal data on the grounds that such publication would harm his/her legitimate interests. In this case the contribution may be published in anonymous form. Otherwise the contribution will not be published nor will, in principle, its content be taken into account."

Respondents are invited to clearly identify themselves, e.g. sector, type of activity, size, turnover, and to send their answers to the above mentioned questions by 1 November 2010 to:

entr-metrology@ec.europa.eu

Annexes:

1. Smart metering and the Measuring Instruments Directive
2. The Mutual Recognition Regulation
3. List of changes to MID suggested by WELMEC (Member States and some stakeholders)
4. List of sectors suggested as candidates for inclusion in MID

Background documents:

1. Evaluation report by CSES (101p)
2. Details of changes to MID suggested by Member States and some stakeholders (81p)
3. Details of proposals for new sectors (63p)
4. Details relevant for impact assessment of 13 new sectors (by RPA) (75p)
5. Survey of SMEs on possible sectors for inclusion in the MID (17p)

Annex 1

Smart metering and the Measuring Instruments Directive

1. Legal context

Utility meters for residential, commercial and light industrial use fall under Directive 2004/22/EEC on measuring instruments.[13] Article 2 (1) of this Directive provides that Member States may prescribe the use of such measuring instruments. If they do so, Article 8 (2) of this Directive requires that Member States shall take all necessary steps to ensure that measuring instruments be placed on the market and/or put into service only if they satisfy the requirements of this Directive. According to Article 4 of the same Directive, a measuring instrument must meet the essential requirements set out in Annex I and the relevant instrument-specific MI-Annex. The assessment of the conformity of a measuring instrument to those essential requirements is subject to a Notified Body (Articles 9, 11 and 12 of Directive 2004/22/EC).

Additional requirements by Member States risk interfering with Directive 2004/22/EC, which limits product related requirements to the "essential requirements" needed to perform tasks requiring legal metrological control, and refrains from specifying detailed product characteristics or other functionalities.

Instead, Directive 2004/22/EC – like all New Approach Directives – opted for the complementation of the legal requirements by voluntary harmonised standards (see Article 13 thereof). Compliance with a harmonised standard provides the presumption of conformity with the relevant essential requirements. Member States must not make the specifications of harmonised standards mandatory since a manufacturer must keep the option to prove compliance with the legal essential requirements by other means.

By laying down specific national requirements for measuring instruments, a Member State would infringe Article 8(1) of Directive 2004/22/EC, which states that "*Member States shall not impede for reasons covered by this Directive the placing on the market and/or putting into use of any measuring instrument that carries the 'CE' marking and supplementary metrology marking in accordance with Article 7.*".

As regards smart metering, essential requirements are included in Directive 2004/22/EC (notably Annex I points 7.6, 8.1-8.5 and 10.5). Directive 2004/22/EC on measuring instruments being a full harmonisation of utility meters as regards metrological requirements allows all functionalities that do not interfere with the metrological characteristics of the instrument. These are not subject to any other limitations, i.e. the Directive allows any specification to be put into use.

By means of Mandate M/374 of 20 October 2005 for Standardisation in the field of measuring instruments, CEN and CENELEC were invited to develop standards for utility meters.

Directive 2006/32/EC on energy end-use efficiency and energy services[14] addresses framework conditions for achieving national energy savings targets. The Directive sets also an obligation for each Member States to adopt National Energy Efficiency Action Plans (NEEAPs). The Plans are meant to integrate all national measures addressing energy efficiency including these related to metering and billing of energy consumption.

[13] OJ L 135, 30.4.2004, p. 1.
[14] OJ L 114/64 of 27.04.2006

Article 13 of Directive 2006/32/EC mentions the need for providing final consumers with competitively priced individual utility meters that accurately reflect the final customer's actual energy consumption and that provide information on actual time of use, in so far as it is technically possible, financially reasonable and proportionate in relation to potential energy savings.

Article 13 of Directive 2006/32/EC is a performance-related requirement to Member States which must be satisfied as fully as possible by means of measures taking into account Directives 2006/32/EC and 2004/22/EC in order to ensure a coherent and comprehensive implementation of both directives. In this context, national measures intending to satisfy Article 13 of Directive 2006/32/EC should not prescribe any specific technical solutions for measuring instruments which are already addressed by Directive 2004/22/EC. The latter establishes the requirements that a measuring instrument has to satisfy in order to be placed on the EU market and put into use. Directive 2004/22/EC leaves the manufacturer the choice to use any technical solution that ensures compliance of the instrument with the essential requirements. This ensures the widest competition on the EU market.

In order to satisfy both Directive 2004/22/EC and Directive 2006/32/EC, Mandate M/441 of 12 March 2009 invited CEN, CENELEC and ETSI to develop standards in the field of measuring instruments for the development of an open architecture for utility meters involving communication protocols enabling interoperability.

The Third Package Liberalisation Directive 2009/72/EC for electricity (Article 3.11 and Annex 1, point 2)[15] and Directive 2009/73/EC for gas (Article 3.8 and Annex 1, point 2)[16] are similarly performance-related requirement to Member States, the aims of which must be achieved within the context of Directive 2004/22EC where applicable. This is reinforced by the revised objectives and duties of national regulatory authorities in these Directives, who are responsible for promoting a competitive, secure and environmentally sustainable internal market in electricity/gas within the European Union taking into account long-term objectives (Article 36(a) of the Electricity Directive, Article 40(a) of the Gas Directive). Relevant long-term objectives are European targets for the share of energy from renewable sources in final energy consumption, energy efficiency improvements and greenhouse gas emission reductions.

When considering issues relating to the implementation of Smart Grids, Member States

should have due regard to the confidentiality of consumer information as provided for in Article 16 of the Treaty of the Functioning of the European Union.

2. The expected impacts of smart metering

a) Energy efficiency

There are conceivably four major technical elements to energy efficiency: investment in insulation and more efficient machinery, smart plugs and smart machines that can change behaviour in relation to tariffs or other steering inputs, smart grids that can send signals to consumers and optimize load management and smart meters which can handle complex information in order to give correct information for billing and influence consumer behaviour.

Each has its separate costs and benefits scheme and these must be disentangled to properly assess each alternative.

[15] OJ L 211/55 of 14.8.2009
[16] OJ L 211/94 of 14.8.2009

As regards the latter, the ERGEG[17], offers a description of a Smart Meters that makes the point: “Meters could be equipped with a gateway that enables home automation and which allows for future customisation as demand response and other technologies come online.”

In other words the meter should be seen as the enabler for home controlling systems, and not as a controller itself. The market rationale is that while the meter is unavoidably linked to the contract with the utility because its relation to billing, home energy management systems should remain open market, on which the utilities should compete, if they want to, on equal open basis[18].

Therefore, a decoupling is needed of both systems. Additionally, there are technical reasons to keep them conceptually separate. It is not conceivable that a home device that could be controlled directly from the meter only based on energy costs without some further additional information, like presence or temperature; hardly the washing machine. There are reports about "boxes" doing both things at the same time, but this is the exception and not the rule.

b) Consumer choice and behaviour

Another element relevant for smart meters could be that of consumer choice for one or the other energy supplier. For the moment this is rather unclear. Should meters be able to take tariffs from various suppliers and offer consumers a close to real time comparison of costs by competing suppliers? Would it be conceivable that in a not too distant future consumers could take energy by the minute from the most competitive whereby the meter takes the decisions? In the end the consumer wants to buy where it is cheapest.

An intermediary step could be that there exist fixed tariffs at fixed hours (whereby higher tariffs coincide with peak hours) which could reduce what would be technically possible by means of digital management in favour of consumers.

In order to influence consumers' behaviour through smart meters, e.g. to create a a basis for sustained demand reduction, it may be necessary to provide the consumers with an instantaneous direct feedback in combination with frequent and accurate billing. Direct displays in combination with improved billing would seem to result in early energy savings at a relatively low cost.

c) Smart grid and smart metering

Smart grid and smart metering can each function and give benefits together and independently. Smart Grids encompass a much wider area than the smart metering. However, smart metering brings intelligence to the "last mile" between the grid and the final customer. Both may use very similar information and therefore the two are inextricably linked.

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[17] ERGEG Public consultation Paper on Draft Guidelines of Good Practice on Regulatory Aspects of Smart Metering for Electricity and Gas, Page 39:
http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_CONSULT/OPEN%20PUBLIC%20CONSULTATIONS/Smart%20metering/CD/E10-RMF-23-03_GGP-SmartMetering_PC_10-Jun-2010.pdf
on
http://www.energy-regulators.eu/portal/page/portal/EER_HOME

[18] CableLabs: Creating a Robust Market for Residential Energy Management through an Open Energy Management Architecture: http://www.cablelabs.com/downloads/pubs/residential_energy_management.pdf

d) Some Benefits and Costs

Several studies have already looked into the costs and benefits of smart metering and further assessments on costs and benefits from electricity and gas smart metering are to be conducted by EU Member States by 2012 in accordance with Directives 2009/72/EC and 2009/73/EC[19].

Based on a selection of recent studies, costs and benefits from smart energy use and distribution include:

Smart residential investment: Energy use in the building sector (residential and commercial) is responsible for the lion's share – 40% – of EU total final energy consumption and of EU total CO_2 emissions – 36%. There is significant potential for energy savings. Projected greenhouse gas emissions worldwide in the buildings sector can be with net economic benefit by 2030. At the level of EU-27 this could mean 500Mt CO_2 emission reduction by 2020.[20]

For new buildings, there is a drive towards nearly-zero energy consumption by design based on the orientation of the buildings, improved insulation, heat recovery, building energy management systems, etc. In such buildings, it has been claimed[21] that operational costs can be reduced by up to 80%. For existing buildings, energy savings of 10-20% are readily accessible through taking steps to reduce energy consumption – with typical payback periods of 5-10 years[22].

Smart plugs and home controlling systems: 'smart plugs' reduce consumption by switching off unused appliances and can cost from under €10 with a claimed payback period of one year. More 'intelligent' plugs can also monitor usage, incorporate automatic timing of use, etc. They can also be networked to provide an overall picture of electricity consumption outlet by outlet[23]

Smart grids: Recent studies show that Smart Grids technologies can enable emissions reductions. The Smart 2020 [24] study has estimated that Smart Technology could reduce global emissions by 15%. The EPRI 2008 [25] expects smart grids to reduce nearly 9% of the total domestic carbon emissions generated by the U.S. power sector in 2006. For Europe, the Bio Intelligence Study[26] supported by the Commission in 2008 concludes that Smart Grids could reduce almost 9% of the EU annual primary energy consumption of the energy sector in 2020 which equals to 37.2 Mtoe or 148 TWh of electricity. Based on average prices for electricity in 2010, this amounts almost €7.5 billion/year of saving.

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[19] Commission services guidance on the roll-out of smart meters : http://ec.europa.eu/energy/gas_electricity/index_en.htm

[20] SEC(2008) 2864 volume 5, Brussels, 13.11.2008

http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=SEC:2008:2864:FIN:EN:PDF

[21] http://ec.europa.eu/energy/efficiency/doc/buildings/info_note.pdf

[22] http://ec.europa.eu/enterprise/sectors/electrical/files/electrareport_en.pdf

[23] See, for example, http://news.cnet.com/8301-11128_3-10391736-54.html

[24] GeSI and the climate Group. SMART 2020. http://www.gesi.org/LinkClick.aspx?fileticket=tbp5WRTHUoY%3D&tabid

[25] EPRI 2008. Electric Power Research Institute (EPRI). *The green grid: Energy savings and carbon emissions reductions enabled by a smart grid.* Palo Alto, California, United States: EPRI, accessed November 2009. http://www.smartgridnews.com/artman/uploads/1/SGNR_2009_EPRI_Green_Grid_June_2008.pdf

[26] Bio Intelligence Service. Impacts of Information and Communication Technologies on Energy Efficiency, Final Report September 2008. Supported by the European Commission DG INFSO, ftp://ftp.cordis.europa.eu/pub/fp7/ict/docs/sustainable-growth/ict4ee-final-report_en.pdf

According to the IEA, 1000 b€ will be invested to deploy power networks in the EU by 2030. 50% will be spent on generation and another 50% on transmission and distribution. According to the final High-Level Advisory Group on ICT for Smart Electricity Distribution Networks report [27] published in July 2009, investing Smart Grids deployment will by 2030 require additional investment of €176 billion on the IT, including about €50 billion investments in smart metering.

Smart meters changing behaviour by consumers: a user-friendly energy display (e-wizard) show energy reduction of 14% equal to €200 per year, due to turning off of household appliances and turning down heating and lighting[28]. The same source indicates that replacement with energy efficient appliances can reduce another 20%, however, this saving should not be attributed to smart metering but to smart investment. Similarly even part of the first 14% could be rather due to home area network efficiency if automated.

Some Member States have started or are planning the roll-out of smart metering as the first step towards the implementation of Smart Grids in Europe. For example, almost 100% of the customers have been equipped already with smart metering systems in Italy and Sweden. Pilot projects are being developed by utilities in the Netherlands, Scandinavia, France, Spain, Germany and the UK. Central Europe is also catching onto the potential savings that digital meters can bring and trials are expected within the next year/s.

In general, cost benefit analysis in Member States shows clear overall smart metering benefits, but benefits accrue to different parties in the chain, no single party can afford to bare all the costs[29]. For example, Italy's ENEL[30] has calculated €2.1 billion investments, against cost saving of €500 million p/a. In the UK[31] the government estimated that fitting 26 million homes with smart meters by 2020 would cost over £8 billion; but the cost would be more than compensated for by £14.5bn of savings in the operational costs of power companies and lower bills for customers. In Spain[32], where the government has introduced an obligation to roll out smart meters by 2018, the industry says consumers will contribute around 70% of the required €1bn investment through the rental price of meters. The rest will be investment in managing the system.

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[27] Findings by the High-Level Advisory Group on ICT for Smart Electricity Distribution Networks. ICT for a low carbon Economy-Smart Electricity Distribution Networks, July 2009. Supported by the European Commission, DG for Information Society and Media. http://ec.europa.eu/information_society/activities/sustainable_growth/docs/sb_publications/pub_smart_edn_web.pdf

[28] http://www.nuon.com/press/press-releases/20090713/index.jsp

[29] Senter 2006. Smart Meters for Dumb Markets. The global experience. Sentec Presentation. 2006. Smart Meters for Dumb Markets: The Global Experience. http://www.sentec.co.uk/pdfs/ceftalkv1.pdf.

[30] ENEL: National Energy Technology Laboratory (2007-08) (pdf). *NETL Modern Grid Initiative — Powering Our 21st-Century Economy*. United States Department of Energy Office of Electricity Delivery and Energy Reliability. p. 15. http://www.netl.doe.gov/smartgrid/referenceshelf/whitepapers/Modern%20Grid%20Benefits_Final_v1_0.pdf. Retrieved 2008-12-06

[31] EuuActiv 30/11/2009. http://www.euractiv.com/en/energy/power-firms-want-funding-model-smart-grids/article-187773

[32] Spain (ORDEN ITC/3860/2007):

http://www.greenunivers.com/wp-content/uploads/2009/05/capgemini-smart-metering.pdf

http://www.iea.org/textbase/pm/?mode=pm&id=4463&action=detail

http://www.euractiv.com/en/energy-efficiency/smart-meters-controlling-your-energy-bill

Average annual consumption reductions are expected to range from 5% to15%[33]. For example, in France the French regulator CRE[34] has estimated that with the implementation of smart metering the supplier switch capability will increase by a factor of 10 (50% instead of 5% without smart metering), decrease residential consumption by 5% and decrease CO2 emissions by 5%. In Finland, installation of smart metering encouraged consumer to increase energy efficiency by 7%. In the US, demonstration project in the Olympic Peninsula, users reduced the power used by 15% during key peak hours and consumers saved on average approximately 10% on their electricity bills.

In Europe the price per meter has dropped in the last ten years from more than €150 each to less than €50 for a basic unit. Simultaneously, Italy's ENEL experience shows that the quality of service has increased from 128 min. interruption /year in 2001 to 49 min. in 2009[35]

[33] Findings by the High-Level Advisory Group on ICT for Smart Electricity Distribution Networks. ICT for a low carbon Economy-Smart Electricity Distribution Networks, July 2009. Supported by the European Commission, DG for Information Society and Media. http://ec.europa.eu/information_society/activities/sustainable_growth/docs/sb_publications/pub_smart_edn_web.pdf

[34] http://www.cre.fr

[35] Dario Gerofalo, ENEL Spa. Smart Metering and Smart Grids: the ENEL experience, Brussels, 8 March 2010. http://www.ceps.eu/system/files/events/2010/02/Garofalo_ENEL.pdf.

Annex 2

Mutual Recognition Regulation (EC) No 764/2008

In order to assess the need for harmonisation it is particularly important to be aware of the existence of barriers to trade. Given that the Mutual Recognition Directive has entered into force on 13 May 2010, evidence of trade barriers can now be given quite objectively by manufacturers who have experienced their products not being mutually recognised.

Regulation (EC) No 764/2008[36] (the "Mutual Recognition Regulation") applies to administrative decisions addressed to economic operators, whether taken or intended, on the basis of a technical rule. National authorities must apply it if the administrative decision to be taken: (1) concerns a product lawfully marketed in another Member State, (2) concerns a product which is not subject to harmonised EC law, (3) is addressed to economic operators, (4) is based on a technical rule and (5) has the direct or indirect effect that the product is: (a) prohibited from being placed on the market, (b) modified or subject to additional testing before it can be placed or kept on the market or (c) withdrawn from the market.

1. In the case of a product which has been granted a type-approval in one Member State, and is also effectively lawfully marketed there, then the product would fully be covered by the Regulation. Should the national authorities in a second Member State feel that there are grounds for not applying the principle of mutual recognition as set out in the Regulation, they must specify the technical rules on which their decision will be based and set out technical and scientific evidence to the effect that:

- (a) the intended decision is justified on one of the grounds of public interest set out in Article 34 TFEU or by reference to other overriding reasons of public interest; and
- (b) the intended decision is appropriate for the purpose of achieving the objective pursued and does not go beyond what is necessary in order to attain that objective (Article 6(1) of the Regulation).

Any such decision must be notified to the economic operator, as well as to the Commission (Article 6(2) of the Regulation). The Commission services will examine the notification in relation to the Mutual Recognition Regulation and the general principle of free movement of goods (Articles 34-36 TFEU).

2. On the other hand, if only a type-approval has been granted, but no actual marketing has taken place in any Member State, the Mutual Recognition Regulation is not of application. However, even in such a case, according to the general principle of mutual recognition which derives from the case-law of the Court of Justice of the European Union, certificates and tests reports issued by authorities from other Member States should be taken into account by the national authorities when deciding whether or not a particular product can be marketed. This would equally concern the type-approval.

[36] 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 (Text with EEA relevance); OJ L 218 of 13.8.2008, pp. 21-29.

Annex 3

List of changes to MID suggested by WELMEC (Member States and some stakeholders)

N°	Authoring WELMEC-wg[37]	Place in MID	Subject	Details of Proposal in Background Document 2	Decisions notified under MRR[38] (= trade barriers)
1	WG-11	Art. 1	Define « functions » in specific annexes	2	0
2	WG-8	Art. 5	Modification of the subassemblies and the complete measuring instrument	3	0
3	WG-10	Art. 23	Mix-and-match of new SSD's with old dispensers	4-8	0
4	WG-8	Annex I	Metrological Data Processing Unit (MDPU)	9-10	0
5	WG-11	Annex I	Real time clock	11-12	0
6	WG-8	Annex I 1.1	No exploiting the MPE	13	0
7	WG-2	Annex I 1.3.1	Temperature limits	14-15	0
8	WG-8	Annex I 8	Sealing	16	0
9	WG-2	Annex I 10.1&3	Meaning of hard copy	17-18	0
10	WG-11	Annex I 10.5	Display of legally important results	19-20	0
11	WG-11	MI-001	Changes to MI-001 (water meters)	21-24	0
12	WG-11	MI-002	Changes to MI-002 (gas meters)	25-32	0
13	WG-11	MI-002	MPE of gas meters	33-37	0
14	WG-11	MI-002	Gas energy measurement	38-43	0
15	WG-11	MI-003	Instrument transformers	44-47	0
16	WG-11	MI-003	Changes to MI-003 (electricity meters)	48-56	0

[37] WELMEC, is the organisation of national authorities in legal metrology at which meetings some stakeholders participate. Suggestions for the text changes are from the following WELMEC working groups:
WG-2 : weighing instruments (MID, Annex MI-006)
WG-8 : horizontal MID issues and Annex MI-007, Annex MI-008, Annex MI-009 and Annex MI-010
WG-10 : measuring systems fro continuous and dynamic measurement of other liquids than water (MID, Annex MI-005)
WG-11 : utility meters (MID, Annex MI-001, Annex MI-002, Annex MI-003 and Annex MI-004)

[38] Regulation (EC) No 764/2008; OJ L 218 of 13.8.2008, pp. 21-29 **– See Annex 2 above for details**

17	WG-11	MI-004	Changes to MI-004 (heat meters)	57-66	0
18	WG-10	MI-005	Fuel Dispenser Totalisers for Tax purposes	67	0
19	WG-10	MI-005 5.3	Solve unclarity regarding gas elimination devices	68	0
20	WG-10	MI-005 5.6	Self Service Devices as sub-assemblies	69	0
21	WG-2	MI-006 CH I	Subassemblies	70-72	0
22	WG-2	MI-006 CH II Tab.4 1.2	Verification scale intervals for single or multi-interval instruments	73-74	0
23	WG-2	MI-006- CH II 2.1	Category X instruments	75-76	0
24	WG-2	MI-006 CH II 5	High precision weighing instruments	77-78	0
25	WG-2	MI-006 CH II 6.2	Dynamic setting	79-80	0
26	WG-8	MI-007	Improvement of annex MI-007 (taximeters)	81	0

Annex 4

Sectors suggested as candidates for inclusion in MID (short descriptions on next page)

N°	Authoring WELMEC-wg[39] or DG	Place in MID	Subject	Details of Proposal in Background Document 3	Decisions notified under MRR[40] (= trade barriers)
27	WG-11	MI-003	Reactive electrical energy meters* °° and precision electricity meters	2-9	0
28	WG-8	MI-009	New length measuring instruments	10-12	0
29	WG-8	New Annex	Equipment for the measurement of the speed of vehicles* °°	13-16	0
30	WG-8	New Annex	Alcohol breath analysers* °°	17-20	0
31	ENTR	New Annex	Electrical vehicle chargers* °°	21-25	0
32	MOVE	New Annex	Energy measurement system for use on board railway vehicles* °°	26-27	0
33	WG-2	New Annex	Automatic weighing of road vehicles* °°	28-32	0
34	WG-8	MI-010	Enlarge scope of exhaust gas analyser* °°	33	0
35	WG-10	New Annex	Measuring systems for compressed natural gas (CNG)	34	0
36	WG-10	New Annex	Level gauge on tank trucks and fixed storage tanks	35-42	0
37	WG-8	MI-001	Irrigation water meters* °°	43-46	0

[39] WELMEC, is the organisation of national authorities in legal metrology at which meetings some stakeholders participate. Suggestions for the text changes are from the following WELMEC working groups:
WG-2 : weighing instruments (MID, Annex MI-006)
WG-8 : horizontal MID issues and Annex MI-007, Annex MI-008, Annex MI-009 and Annex MI-010
WG-10 : measuring systems fro continuous and dynamic measurement of other liquids than water (MID, Annex MI-005)
WG-11 : utility meters (MID, Annex MI-001, Annex MI-002, Annex MI-003 and Annex MI-004)

[40] Regulation (EC) No 764/2008; OJ L 218 of 13.8.2008, pp. 21-29 **– See Annex 2 above for details**

38	WG-8	MI-001	Waste water meters* °°	43-46	0
39	WG-8	MI-001	Large scale water meters* °°	43-46	0
40	WG-8	New Annex	Alcoholmeters, alcohol hydrometers and associated thermometers* °°	47-50	0
41	WG-2	New Annex	Weights* °°	51-54	0
42	WG-8	New Annex	Tyre pressure meters* °°	55-58	0
43	WG-8	New Annex	EC standard mass per storage volume of grain* °°	59-61	0
44	WG-8	New Annex	Ships' tanks*	62-63	0

**** For the 13 sectors marked with an asterix, Appraisal Summary Tables (AST) concerning the impact assessment of the sector are available in Background Document 4.***

°° For views by SMEs on these sectors, see Background Document 5.

Short description of the sectors in Annex 4

27. Reactive electrical energy meters: Meters to measure the reactive electrical energy utilised by an electricity user (*note that standard electricity meters measure 'active electrical energy'*).
28. New length measuring instruments: length instruments which move while the object remains, e.g. electronic measuring instruments used in real estate and road measuring wheels.
29. Equipment for the measurement of the speed of vehicles: Equipment (usually radar) which may be fixed or mobile used for the measurement of traffic speed on roads.
30. Alcohol breath analysers: Devices which measure the alcohol content of a breath sample. Various different technologies are available depending on the particular purpose of the instrument.
31. Electrical vehicle chargers: Plug-in electric (including hybrid) vehicles necessitate an external source of electricity and a charger in order to recharge the vehicle's batteries in exchange for payment. The scope of this work also includes chargers used in electrically power assisted cycles.
32. Energy measurement system for use on board railway vehicles: An on-board device to measure the electricity consumed (and generated) by electric railway vehicles, supplied from the external traction system, along with other parameters such as train position recording, data transmission for analytical and billing purposes.
33. Automatic weighing of road vehicles: Allows the fully unattended dynamic weigh-in-motion of vehicles at high and low speeds in situations including but not exclusive to the following: fare and toll systems, traffic detection and monitoring, road safety and guidance, and the screening of vehicles for weight compliance.
34. Exhaust gas analysers for motorbikes/diesel engines: Exhaust gas analysers are used to detect concentrations of combustion products emitted from a vehicle's exhaust. They can be used to test for compliance with emission standards, diagnose engine faults and measure combustion efficiency.
35. Measuring systems for compressed natural gas (CNG): Measuring systems intended for the continuous measurement of flowing quantities (volumes or masses) of compressed (high pressure) natural gas, an engine fuel for cars and trucks that is more environmentally friendly than conventional fuels.
36. Level gauge on tank trucks and fixed storage tanks: Measuring systems intended for the discontinuous measurement of quantities (volumes or masses) of liquids other than water in fixed or mobile storage tanks, i.e. rail and road tankers.
37. Irrigation water meters: Water meters intended for the measurement of the flow of water used for irrigation purposes (which are not covered by the existing Measuring Instruments Directive).
38. Waste water meters: Water meters intended for the measurement of the flow of waste water (which are not covered by the existing Measuring Instruments Directive).
39. Large scale water meters: Water meters intended for the measurement of the large-scale flow of clean cold water in distribution networks (which are not covered by the existing Measuring Instruments Directive).
40. Alcoholmeters and alcohol hydrometers: These are instruments for measuring (directly or indirectly) the alcoholic strength of water/ethanol mixtures (including beers, wines and spirits).
41. Medium and above-medium accuracy weights: Weights are used as counter mass on mechanical weighing instruments in trade and commerce. Weights are also used as reference for the verification of weighing instruments.
42. Tyre pressure gauges for motor vehicles: Instruments found in commercial garages, petrol stations and tyre fitting shops which display the pressure when inflating pneumatic tyres.
43. Standard mass of grain: Instrument used to measure the standard mass of grain per storage

volume (also known as bulk density and specific weight).
44. Ships' tanks: The tank of an inland waterway vessel or a national/international coaster, which is used for carrying goods. Liquid fuel bunkers are included.