The purpose of this document is to give guidance to manufacturers and users of thermal energy and water meters, together with their associated ancillary devices, on whether those products are in the scope of the Recast Directive 2012/19/EU.

1) The Industry position

Directive 2012/19/EU (recast WEEE Directive or WEEE2) was published in the Official Journal of the EU on 24 July 2012. Member States have until 14 February 2014 to transpose that Directive into national law. Aqua take the position that industries producing thermal energy and water meters wish to explicitly state the aforementioned meters are to be excluded from the scope of the WEEE2 Directive and the administrative implications resulting from being in scope.

2) Executive summary

- Thermal energy and water meters together with their attached ancillary devices are:
  - Either mechanical apparatus and not EEE (electrical or electronic equipment) and do not fall within the scope of the Directive. More specifically, our non-smart meters do not require electrical energy to fulfil their function,
  - Thermal energy meters and Smart water meters are not part of the existing WEEE Categories in Annex I
  - Or, as is the case for all our meters, they shall be considered part of the excluded “large scale fixed installation”, and within that installation, are “equipment which is specifically designed and installed, as part of another type of equipment that is excluded from or does not fall within the scope of this Directive, which can fulfil its function only if it is part of that equipment.

Conclusion: Thermal energy and water meters are excluded from the scope of this Directive.

4/02/2014
- Ancillary devices – communication modules installed on meters like radio and data transponders – can occur as an add-on to the meter, connected by a wire to the meter, or installed as a separate module, and:
  o Equipment which is specifically designed and installed as part of another type of equipment that is excluded from or does not fall within the scope of this Directive, which can fulfil its function only if it is part of that equipment.

**Conclusion:** Ancillary devices – communication modules installed on excluded meters, as above, are then excluded from the scope of this Directive in the case that the communication device is installed in or on the meter.

3) **Meters: thermal energy and water meters.**

**WEEE Directive 2012/19/EU:** Excerpts from the Directive applicable to thermal energy and water meters and their ancillary devices.

**Article 2: Scope**

1. This Directive shall apply to electrical and electronic equipment (EEE) as follow:

(a) from 13 August 2012 to 14 August 2018…, subject to paragraph 3, to EEE falling within the categories set out in Annex I. …

(b) From 15 August 2018, subject to paragraph 3 and 4, to all EEE.

……

Paragraph 3. This Directive shall not apply to any of the following EEE:

……

(b) equipment which is specifically designed and installed as part of another type of equipment that is excluded from or does not fall within the scope of this Directive, which can fulfil its function only if it is part of that equipment;

……

Paragraph 4. In addition to the equipment specified in paragraph 3, from 15 August 2018, this Directive shall not apply to the following EEE:

……

(c). large fixed installations, except any equipment which is not specifically designed and installed as part of those installations;

**Article 3: Definitions**

1. For the purpose of this Directive, the following definitions shall apply:

   (a) “electrical and electronic equipment” or “EEE” means equipment which is dependent on electric current or electromagnetic fields in order to work properly… and designed for use with a voltage rating not exceeding 1000 volts for alternating current and 1500 volts for direct current; …

4/02/2014
(c) “large-scale fixed installation” means a large-size combination of several types of apparatus and where applicable, other devices, which:

(i) Are assembled, installed and de-installed by professionals;
(ii) Are intended to be used permanently as part of a building or a structure at a pre-defined and dedicated location; and
(iii) Can only be replaced by the same specifically designed equipment;

How does this apply to thermal energy and water meters?

3.1) The Directive being structured in two periods, we shall examine each period:

3.1.1) From 13 August 2012 to 14 August 2018
Is a meter an EEE?
On behalf of our entire Industry, this question can be answered as following:
A. No: Mechanical water meters are not EEE, i.e. they do not require electricity to fulfil their function.
We can conclude, these mechanical meters are not EEE, thus this Directive does not apply to them.
B. Yes: Thermal energy meters and Smart water meters do require electrical energy to fulfil their function.
C. Thermal energy meters and Smart water meters are not part of the existing WEEE Categories in Annex I. (for details see ANNEX 3.1.1.c)
We can conclude, these Thermal energy meters and Smart water meters are not falling within the categories set out in Annex I, thus this Directive does not apply to them.

3.1.2) From 15 August 2018 onward:
Is a meter an EEE?
On behalf of our entire Industry, this question can be answered as following:
A. No: Mechanical water meter are not EEE, i.e. they do not require electricity to fulfil their function.
We can conclude, these mechanical meters are not EEE, thus this Directive does not apply to them.
B. Yes: Thermal energy meters and Smart water meters do require electrical energy to fulfil their function.

This leads us to conclude, Thermal energy meters and Smart water meters fall under another exclusion from the Directive: Large scale fixed installations as in article 2, 4, (c), and its definition as in article 3, 1, (c),

2.4. In addition to the equipment specified in paragraph 3, from 15 August 2018, this Directive shall not apply to the following EEE:

(c). large fixed installations, except any equipment which is not specifically designed and installed as part of those installations;

3.1,(c) “large-scale fixed installation” means a large-size combination of several types of apparatus and where applicable, other devices, which:

(i) Are assembled, installed and de-installed by professionals;
(ii) Are intended to be used permanently as part of a building or a structure at a pre-defined and dedicated location; and

(iii) Can only be replaced by the same specifically designed equipment;

Thermal energy and water meters are specifically designed and installed as parts of thermal energy and water production, transport and distribution systems from the production site until inside the user’s house, commercial building or industrial site. (for detail see ANNEX 3.1.2.a)

When screening those systems against the Large scale fixed installations as in article 2, 4, (c), and its definition as in article 3, 1, (c), the reply is yes to all and every question.

Those utility meters are regulated by Directive 2004/22/CE MID.

Even the smallest system at the level of a town is a large-size combination of apparatus and where applicable, other devices

- They are always assembled, installed and de-installed by professionals:
- They are used by utilities or service companies specialised in sub-metering, who install and de-install them themselves or sub-contract meters installation/de-installation to professional installers.
- They are always intended to be used permanently.
- Meters lifetimes in the same location, subject to countries rules and type of meters, are between 4 and 20 years. (for details see ANNEX 3.1.2.b)
- Meter integrity is protected by MID essential requirements. (for details see ANNEX 3.1.2.c)
- Fraudulent removal is protected by standard and national regulations. (for details see ANNEX 3.1.2.c)
- The location is always a part of a building or a structure at a pre-defined and dedicated location.
- Utilities and service companies specialised in sub-metering, decide, in line with national local rules and the type of dwellings, of the location of those meters through companies installation instructions.
- Thermal energy and water meters can only be replaced by the same specifically designed equipment i.e. thermal energy and water meters.

Conclusion:

Thermal energy and water meters fulfil completely Art. 2(4)(c), Thermal energy and water meters are as such excluded from the scope of this Directive.

4) Ancillary devices – Communication modules

- Ancillary devices - communication modules like radio or data transponders
- Being specifically designed to be part of a mechanical meter that is excluded from or does not fall within the scope of this Directive
- Is installed as part of a mechanical meter that is excluded from or does not fall within the scope of this Directive
- Can fulfil its function only if it is part of a mechanical meter which does not fall within the scope of this Directive
- For details see ANNEX 4.a
Conclusion:

The ancillary devices fulfil completely Art. 2(4)(c), “equipment which is specifically designed and installed as part of another type of equipment that is excluded from or does not fall within the scope of this Directive, which can fulfil its function only if it is part of that equipment.”

Ancillary devices - communication modules are excluded from the scope of this Directive.

5) Further information

Treaty basis:

The recast WEEE Directive is based on Article 192 of the Treaty on the Functioning of the European Union (Lisbon Treaty), which similarly to WEEE1, allows Members States to go beyond its requirements in their national transpositions.

Timeline for transposition

- August 2012: Directive 2012/19/EU enters into force (20 days after OJEU publication)
- February 2014: Directive must be transposed by all Members States.
- August 2015: Commission review of the impact of the transition to an open scope concludes.
- August 2018: New 6 category open scope starts.

Cut with RoHS

RoHS 1 and WEEE 1 had the same EEE definition and were considered as 2 linked Directives.

RoHS 2 and WEEE 2, due to the difference of EEE definitions, are 2 separate legal instruments.
ANNEX 3.1.1.c

WEEE Categories in ANNEX I: Thermal energy meters and Smart water meters are not part of the existing WEEE Categories in ANNEX I

1) According to article 2.1.a: This Directive shall apply to EEE as follows:
   From 13 August 2012 to 14 August 2018 (transitional period), subject to paragraph 3, to EEE falling within the categories set out in Annex I. Annex II contains an indicative list of EEE which falls within the categories set out in Annex I.

2) Annex I does not mention Thermal energy meters and Smart water meters

3) Annex II mentions under 9. MONITORING AND CONTROL INSTRUMENTS

   - “Measuring, weighing or adjusting appliances for household or as laboratory equipment. “
     - For the Cambridge international dictionary of English a “household” is: a group of people, often a family, who live together. The above definition concerns appliances used by this group of people.
     - Thermal energy meters and Smart water meters are products used by utilities and not by households or as laboratory equipment and thus are not falling within the categories set out in Annex I
   - “Other monitoring and control instruments used in industrial installations (e.g. in control panels)”
     - Thermal energy meters and Smart water meters are not designed to be used in control panels and thus are not falling within the categories set out in Annex I
   - For those reasons Thermal energy meters and Smart water meters are not falling within the categories set out in Annex I
ANNEX 3.1.2.a

Thermal energy and water meters are specifically designed and installed as parts of thermal energy and water production, transport and distribution systems from the production site until inside the user’s house, commercial building or industrial site.

Further to National regulations compulsory metering is the rule in most Members States, and meters are part of thermal energy and water meters are parts of thermal energy and water production, transport and distribution systems.

Moreover two EU documents are strongly asking for compulsory metering in the EU:

- Directive 2012/27/EU on energy efficiency
  - That EED Directive concerns in particular district heating, district cooling and domestic hot water meters.
- RECITAL
  - (26) When designing energy efficiency improvement measures, account should be taken of efficiency gains and savings obtained through the widespread application of cost-effective technological innovations such as smart meters....
  - (28) Use of individual meters or heat cost allocators for measuring individual consumption of heating in multi-apartment buildings supplied by district heating or common central heating is beneficial when final customers have a means to control their own individual consumption.

- Article 9 Metering
  - 1. Member States shall ensure that, in so far as it is technically possible, financially reasonable and proportionate in relation to the potential energy savings, final customers for district heating, district cooling and domestic hot water are provided with competitively priced individual meters that accurately reflect the final customer’s actual energy consumption and that provide information on actual time of use.
  - This article 9 continues with all the conditions and suggestion for using meters. They are not reproduced here but are available on the COMMISSION site.


That communication concerns in particular water meters:

2.1. Putting the right price tag on water

Way forward: At national level, by 2010:

Enhance efforts to introduce compulsory metering programmes in all water using sectors.
Good practice:

In France, irrigators have to be equipped with water meters whenever they go beyond abstraction thresholds. In period 2000-2003, the level of equipment rose from 54% up to 71%, representing 85% of the overall irrigated area.
ANNEX 3.1.2.b

WELMEC site/country info/ Inspection and reverification

In some EU MS there is a legal obligation of inspection and reverification after a certain period of time. That period of time can be considered as the shortest period of installation should the meter not pass the related tests.

Find below data copied from the WELMEC* site, following the above path.

<table>
<thead>
<tr>
<th>Country</th>
<th>Cold water meters</th>
<th>Warm water meters</th>
<th>Heat meters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>5 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>initial period 16 years (8 years if &gt; 10 m3 /h)</td>
<td>8 years</td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td>6 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>6 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portugal</td>
<td>15 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td>6 years</td>
<td>4 years</td>
<td>4 years</td>
</tr>
<tr>
<td>Switzerland</td>
<td>&gt; 5 years</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*WELMEC is the European cooperation in the field of legal metrology. Its Members are representative national authorities responsible for legal metrology in European Union and European Free Trade Association (EFTA) member States.
ANNEX 3.1.2.c

Meter integrity and fraudulent removal protection.

1) Meter integrity is protected by Directive 2004/22/EC MID essential requirements
   - “Art. 8 Placing on the market and putting into use
     - 2. Member States shall take all appropriate measures to ensure that measuring instruments be placed on the market and/or put into use only if they satisfy the requirements of this Directive.”
   - ANNEX I.
   - 8. Protection against corruption
   - 8.2. A hardware component that is critical for metrological characteristics shall be designed so that it can be secured. Security measures foreseen shall provide for evidence of an intervention.

- **WELMEC* Guide 11.3 for sealing of Utility meters** gives all instruction for sealing of utility meters i.e. water meters, gas meters, electricity meters and heat meters.
- This guide has been referenced under MI-12-013 during Measuring Instrument WG meeting on 11/06/12.
  *WELMEC is the European cooperation in the field of legal metrology. Its Members are representative national authorities responsible for legal metrology in European Union and European Free Trade Association (EFTA) member States.
- **Harmonised standards** contain also articles proposing technical solutions for meeting the MID essential requirements.
  - **EN 14154-1+A2 for water meters**
    - 4.8 Meter security and protection against fraud
      - Considerations of water meter security and protection against fraud concern only the meter including primary indications.
    - 4.8.1 Mechanical protection devices
      - Water meters shall incorporate protective devices that can be sealed in such a way that after sealing, both before and after the water meter has been correctly installed, there is no possibility of dismantling or altering the meter or its calibration adjustment device without damaging the seal or the protective devices.

2) Fraudulent removal is protected by standard and national regulation.
   - MID has authority only until putting into use.
   - Then, national legislations apply.
   - **EN 14154-2+A2 Installation and conditions of use, for water meters in its article 5.2.6 Intentional fraud, requires that a seal shall installed between the meter and inlet pipe so that meter removal is impossible without damaging the seal.

3) All the above shows the importance given by EU and national regulators to the protection of meter integrity and fraudulent removal in the various systems where they are installed.
ANNEX 4.a

Ancillary devices – Communication modules

Example of radio devices on water meters.

Today radio devices added to mechanical water meters are the more common communication modules on meters.

Through the examples below you will see that:

- Each of them is specifically designed to be part of a specific mechanical meter.
- Each of them is installed with the meter as part of it.
- Due the specific design of each of them to suit a specific mechanical meter, it can only fulfil its “additional” function when connected to the specific meter.
- Being specifically designed to be part of a specific mechanical meter it can only be replaced by equipment with the same specific design.

Example 1: Mechanical meter manufactured by ITRON

Same mechanical meter fitted with its radio transponder/communication module
Example 2: Radio transponder/communication module designed by SENSUS to suit its own mechanical water meters.

We can see that the Sensus meter and its communication module are different from the Itron ones.

The Sensus communication module cannot be installed on the Itron meter.

Example 3: Radio transponder/communication module designed by SAPPEL; Diehl Group to suit its own mechanical water meters.

Conclusion: It is easy to see and understand that

- The ITRON communication module has been designed to suit the ITRON meter only
- The SENSUS communication module has been designed to suit the SENSUS meter only
- The Sappel communication module has been specifically designed to suit its own mechanical water meter only.
- Each and every communication modules have been specifically designed to be part of a specific mechanical meter.
- Each of them is installed with the meter as part of it.
- Due the specific design of each of them to suit a specific meter, it can only fulfil its "additional" function when connected to the specific meter.
- Being specifically designed to be part of a specific meter it can only be replaced by equipment with the same specific design.