MEMO

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Project:	Lot 2 Ecodesign Preparatory Study for small, medium and large power transformers, Kick-Off meeting
Topic:	Input from Norwegian Water Resources and Energy Directorate (NVE)
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The Norwegian Water Resources and Energy Directorate (NVE), in this case represented by consultants from Viegand Maagøe A/S, would like as stakeholders representatives to forward the following views and comments, with the purpose of having an impact on the now starting preparatory study for the revision of the regulation for small, medium and large power transformers, as stated in Article 7 of 548-2014.

NVE's main statutory objective is to promote social and economic development through an efficient and environmentally sound energy production, as well as efficient and reliable transmission, distribution, trade and efficient use of energy. NVE's responsibility covers the regulatory area as well as other activities defined by law, regulations and decisions from the Norwegian Parliament.

The Norwegian Parliament has taken EU Regulation 548-2014 into Norwegian law in 2015 and NVE has conducted various information activities concerning the topics covered. The following views and comments have been collected during meetings and form correspondence with Norwegian stakeholders, both manufacturers and users.

Data sourcing:

Data from Norway should be a part of the complete database used in the study. Very often we see that data from Norway are left out of similar studies, even if data are plentiful and useful. Since the regulation is supposed to be used in the entire EEA, and not only in the EU, it is important that not only the Commission but also the consultants that prepare the studies gather information and stakeholder views from all countries. We suggest that the new study will contain a more detailed description of conditions that are special for individual countries, including Norway.

Special conditions in Norway:

Norway has to deal with special problems in several ways. Because of a very high degree of electrical heating in houses, heavy industry and long distances compared to other countries in the EU, Norway has high electricity consumption per capita and a large amount of transformers in use. This makes Norwegian stakeholders important to consider, both as producers and users.

Unfortunately at the same time these factors combined with the rocky and remote geography of Norway also presents several problems regarding keeping in compliance with 548-2014 and at the same time maintaining good economical practice, eg.:

1. Narrow roads, tunnels and bridges very often set a limit to the size and weight of transformers that can physically be transported to remote sites. Since new and more efficient transformers are often heavier and larger, older transformers will not be replaced by new ones.

2. Not only transport and handling is difficult, but very often streets and buildings are difficult to alter to accommodate larger equipment, due to the solid rock underground.

3. Norway uses many pole mounted transformers due to rocks in the ground and the difficulty of using cables; hence most distribution is carried on masts and poles. This gives Norway a special interest in how the pole mounted transformers are covered in the regulation.

4. Due to factors mentioned in 1., 2. and 3., the price of transport and installation is often unreasonably high, both when replacing and installing new transformers.

5. Norway has a need for a rather high number of special emergency transformers with several possible voltages, due to difficult repair situations in remote places.

6. Stakeholder producing transformers locally in Norway are concerned about the much higher prices on their products, due to the need of high purity copper and new types of core material in order to build transformer with correct efficiency. Increased allowed loss-tolerances (e.g.: +2 %) could make the demand for a very uniform (and therefore expensive) material quality.

7.

Questions from stakeholders:

The question (6) from the FAQ about how to interpret 548-2016 with respect to three-winding transformers (question raised from Norwegian stakeholders 10-2015) is still very unclear. Although the measurements required are described in norms, there are still problems with interpreting the results of the measurements. These types of transformers are widely used in Norway, and the definition of loss levels is urgent. We suggest that the consultants working with these questions take contact to Norwegian stakeholders who already have methods in use that could be used in the revised regulation.

Stakeholders find it difficult to be in compliance with 548-2014 when purchasing new emergency transformers. This question is only partly covered in FAQ (7) since this is only answered for replacement of existing equipment.

Stakeholders find it sometimes possible to use the PEI figures instead of the full-load and no-load losses to document compliance. Some find that this cannot be correct or feasible.

A future maximum loss of A0-10% / Ak can turn out to be very expensive. Stakeholders suggest that a maximum limit on the total loss (P0+Pk) might be more feasible.