EBA comments sent to the BioGrace team on 28 November 2013

- **The calculation method for GHG emissions must take ALL emission into account, including avoided emissions:**
  - ✓ As discussed, nutrient credits of digestate produced from energy crops and biowaste should also be included in the biogas values as spreading of such digestate leads to a lower need for additional nutrition for plant growth. Scarce and valuable nutrients are recycled and circular economy facilitated. Furthermore, the use of such digestate reduces the production and use of expensive and energy-intensive mineral fertilisers. Thus, the emission credits should also be considered. Calculating only the caloric value of the second product is certainly a wrong approach.
  - ✓ Credits for digestate produced from manure: When digestate is applied as fertiliser instead of raw manure, the ammonia is after digestion immediately available to plants and can be fully accounting for fertilisation replacing mineral nitrogen. This is very different to nitrogen in the raw manure that is released only slowly and does not add to plant growth directly. Besides ammonia, digestate has other advantages: It is more homogenous, can be more evenly distributed on the ground and it reduces the methane emissions as well as mitigates the odours of raw manure. Also it is directly absorbed by the soil and does not stick to plants and the surface of the ground. In addition, digestate represents a best practice in preventing contamination: In many EU Member States manure is spread out on fields directly without any treatment against pathogens causing potential biological contamination. Treatment through anaerobic digestion at higher temperatures (> 50°C) in most cases destroys viruses or at mesophilic temeperatures at least greatly reduces the number of plant and animal pathogens within the feedstock. At the same time also weeds are destroyed.
  - ✓ Manure credits: As already acknowledged by JRC and DG AGRI in the draft revision for Annex V of RED, the avoided emissions (CH_4 and N_2O) of stored raw manure should also be taken into account when manure is used as biogas substrate. According to Austrian Environment Agency, digesting of manure helps to reduce the emissions by up to 90%.
- Renewables should not be compared to the UCTE mix: As (hopefully) more and more renewables will be fed into the grid and also due to nuclear power, the GHG emissions of UCTE mix will lower each year. Eventually (perhaps around 2050) only renewables will be produced. Then renewables would be compared to renewables which does not make sense. Therefore, the renewables should only be compared to different kinds of fossil fuels such as coal, oil and natural gas.
- As already mentioned during the workshop in Austria and also in Brussels, it is important that the comparison of emissions is made within the same rules. Therefore well-to-wheel or well-to-tank emissions of both, renewables and the compared partners among fossil fuels have to be reviewed. Although the exploration and extraction of fossil fuel gets more and more difficult, the emission values seem to remain the same since more than two decades. It cannot be that we only count emission factors from well-developed oil fields etc. but do not consider the much higher environmental damage of new exploration methods and extraction of new fields or oil sands etc. The higher emissions

of these new fields/oils sands have to be also included in the share of international use to get more plausibility for the calculation model.

- Concretely about the BioGrace tool:
    - ✓ Bg wMA: C 54 why do I get only 0,42 MJ Biogas per MJ wet manure? Shouldn´t the value be an automatically calculated result of the efficiency of the CHP plant?
    - ✓ Bg w MA: C 60: shouldn´t this value be an automatic result of the thermal efficiency
    - ✓ Bg w MA: E 72: same question as above?
    - ✓ BGMze: D 35: kg fresh mass ha-1 year-1?
    - ✓ BGMze: c 43: the N content of the digestate should be subtracted here - the same for the other nutrients
- It is important to include also calculation sheets for other substrates like waste streams from agriculture such as straw.
    Biogas plants are usually run on more than one feedstock. To make a right calculation, it is important that the operator can choose more than one substrate. Otherwise the calculation model will not be used.
    As many users of the tool will only work with it a few times a year, it is very important that the model is user-friendly and easy to understand. At the moment some cells lead to a great misunderstanding.
    When using own values for different feedstock it should be possible to link the source (document etc.) to this cell) so that also after a few years it is possible to find out why this was done.
    It should also be possible to add different transport distances to already given substrate streams.